



UNIVERSITY  
of  
GREENWICH

The Business School

## What Nudges will Matter? An Empirical Study of Female Joblessness\*

Gabriella Cagliesi<sup>†</sup>, Denise Hawkes<sup>‡</sup>

# Working Paper

No: CEPGR1

Year: 2013

### Abstract

*The purpose of this empirical study is to use an interdisciplinary approach across labour economics, behavioural economics and social economics to explain female labour market statuses, in particular joblessness choices and conditions. We propose a new theoretical framework, based on Sen's capability approach, new derived variables for the British Household Panel Survey and a new empirical methodology to estimate the probabilities of different labour market categories. Our results show that, in addition to the standard human capital variables, labour market statuses are markedly influenced by the interplay of environmental, social, psychological factors and personal views and values, such as disposition and conformity towards local social rules and to social relations' (network) norms, degree of confidence and optimism, risk attitude, job and life satisfaction, preferences for the status quo and plans for the future. We find that the predicted probability of joblessness improves substantially when we move from the traditional into the multi dimensional approach. Adding new variables to allow for more constraints and opportunities provides a richer and more refined view of factors affecting non employment and helps to recognize and explain better status of people within "similar" groups as well as to identify more accurately those people whose status is not in line with the "expected" (such as the employed against the odds and the "voluntary" non- employed). We found that there are some clear idiosyncrasies across the different types of joblessness in particular when it comes to the category of carers, a unique feature of female joblessness. Our model predicts that being more embedded in a local community, having stronger values for family life and stronger ties with close "inactive" friends, facing potential income losses in changing labour market status (as measured by counterfactual labour income versus actual non labour income), are all factors that increase the odds of being a carer relative to being unemployed and that prompt carers to choose or preserve their status quo. Social environment matters in reinforcing personal attitude producing a sort of confirmation bias effect that suggests that social influence is more effective across similarly minded people. The results suggest that policies focused on areas where high levels of inactivity is present, working with large friendship groups within these areas could be used to motivate groups of individuals into work. Prospective financial losses (of receiving a labour income lower than non labour income if a carer became employed) increase the odds of being a carer while potential labour income gains would always decrease the odds of being carers versus any other category, particularly when the other categories are students and unemployed (i.e., those more potentially "attached" to the labour market). The results suggest a role for in work benefits such as the tax credits system, the national minimum wage and benefit reforms as policy options to help make work pay and provide incentives to work. Finally, designing active labour market policies that are more tailored to the characteristics of the individual job seeker could prove a fruitful avenue for policies such as the Work Programme.*

**Keywords:** Labour Market Activity, British Household Panel Study, Behavioural Economics, Social Connections

\* We would like to thank the participants of the Bedford Square Seminar Series at the Institute of Education, University of London and especially Lorraine Dearden. We are also grateful to the participants at the Western Economic Association International Conference 2012, SABE session and especially the discussant Elizabeth Anne Searing. Finally we acknowledge the financial support from the University of Greenwich Funding (RAE-BUS-004/10). All remaining errors are of course our own

<sup>†</sup> Corresponding author: Gabriella Cagliesi, International Business and Economics Department, University of Greenwich Business School, Park Row, Greenwich, London, SE10 9LS, [cm55@greenwich.ac.uk](mailto:cm55@greenwich.ac.uk)

<sup>‡</sup> Denise Hawkes, International Business and Economics Department, University of Greenwich Business School, [d.hawkes@gre.ac.uk](mailto:d.hawkes@gre.ac.uk)

**Abbreviations:** BE= Behavioural Economics ; BHPS= British Household Panel Survey; CA = Capability Approach; SE = Social Economics

## 1. Introduction

Developments in BE and in SE provide new grounds to interpret economic decisions. Economists and social scientists have not been immune from the fundamental attribution bias built in human nature and they have found different kinds of explanations and theories to describe human behaviours. Internal (personal) attribution explanations have privileged individual's characteristics such as ability, personality, mood, efforts, attitudes, or disposition. External (situational) attribution explanations have privileged the situation in which the behaviour was seen such as the task, other people, or luck. Depending on which approach is used, different perceptions of the individual engaging in behaviour arise. Classical and neoclassical economists have based their interpretation and predictions of actors' economic decisions mainly on external economic constraints, limiting internal attribution aspects to some axiomatic attributes of actors' preferences. Following the utilitarian tradition, the emotionless and undersocialized homo economicus, driven by "interest" rather than passion and only minimally affected by social relations, can make instrumentally rational and independent decisions because he possesses information on events (at least probabilistically), he understands fully the causality relation between means and ends, and he has capacity of solving complicated mathematical problems to devise optimal strategies. His behaviour can be predicted by any observer who knows his preferences and constraints. The ability to offer precise mathematical predictions has made such individualistic theories appealing and elevated them to become almost the exclusive paradigm to model economic behaviour.

The purpose of this study is to study female labour market conditions by departing from this traditional view in two main respects. First of all, our agent is not a "homo economicus" but, rather, a "homo "econAmicus" and "socialis". In making economic decisions our female agent is affected by social relations and by the degree of "embeddedness" in her surroundings, all factors that shape and constraint her opportunities and choices. Secondly, she is a "homo humanus", that is she enters into social relations with her endowment of capabilities, idiosyncrasies, personality traits and human cognitive biases. In other words, she does not follow obediently the social norms and rules of her environment but rather, she interacts with them according to her predispositions, personal beliefs and inner motives. Moreover, the high degree of uncertainty affecting her environment, uncertainty created by innovations and modernization, leads her to simplify her decisions by using some simple, standard "rules of thumb" and habits, which often are filtered by her views and values so to adapt them to fit her own personality. The picture that we have is a richer portrait of an individual who interact with her environment, shape and is shaped by social relations, who can act upon "irrational" emotions without losing the main "rational" goal of her life: finding satisfaction and aiming at reaching well being.

Our analysis is richer in one other aspect. We account for possible differences between various groups of inaction, including carer and disabled, extending in this way Finn and Heckman's (1983) approach who considered whether the unemployed and the inactive were behaviourally distinct statuses and found that indeed they followed different behavioural equations governing transitions.

Our results show that this approach is successful in explaining better and in predicting more accurately labour market statuses than the "traditional" human capital approach used in labour economics analyses. Socioeconomic and personal factors create constraints and opportunities that prompt actions or inactions. Hence by enriching the dimensionality of our agent useful insights are revealed to inspire a more effective architecture of policies to promote work.

This paper is organized as follows. Section 2 gives a brief description of the interdisciplinary approach we apply to study female worklessness, providing references to past and recent literature. Section 3 defines the variables we created and used in order to apply the proposed interdisciplinary approach. Some of the variables are directly available from the BHPS but most of the variables we used in our study ought to be created from the BHPS to capture the essence of our new approach. Section 4 presents the econometric models, the hypotheses and the methodology used in the estimates. Section 5 presents and discusses the results, while Section 6 highlights the limitations of the study and draws some conclusions.

## 2. Theoretical framework: the Interdisciplinary Approach

We depart from the utilitarian and welfarism approaches and to embrace the CA proposed by (Sen, 1980 and Sen, 2002) in relation to labour market decisions. Sen's general approach considers three factors that influence how people convert opportunities into actual achievements: personal characteristics (e.g., physical conditions, gender, skills), social characteristics (e.g., social norms, power of relations, public policies), and environmental characteristics (institutions, infrastructures). In a similar way, we take into account physical, social, psychological and economic factors such as constraints, opportunities, cognitive biases, pecuniary costs and benefits of non working to gain some insights that are crucial in designing and implementing appropriate and effective labour market policies into employment.<sup>§</sup>

---

<sup>§</sup> As eloquently put in Clark (2006:5) "Sen's CA has also been praised for broadening the informational base of evaluation, refocusing on people as ends in themselves (rather than treating them merely as means to economic activity), recognizing human heterogeneity and diversity (through different in personal conversion functions), drawing attention to group disparities (such as those based on gender, race , class, caste or age), embracing human and participation (by emphasising the role of practical reason, deliberative democracy and public action in forging goals, making choices and influencing policy), and

## 2.1 *Homo econAmicus and socialis: the social sphere*

Most of the traditional analysis of labour market decisions has focused on the presumption that people have a tendency to take “action”, by searching and wanting to work only based on pecuniary considerations: opportunity cost (of non working) relative to the advantage of leisure. Action stems from pecuniary/economic concerns. No mention is reserved to psychological costs and benefits or to personal needs and wants. There have been interesting developments in social economics that enrich the nature of homo economicus with a more personalistic rather than individualistic view. Bowles and Gintis (1998), and Fehr and Gächter (1998) and results from experimental economics, while recognizing an individualistic dimension that leads sometimes people to act according to self interest, stress that one main feature of humans is their being “reciprocans”: people are in general generous and interacts with each other with a propensity to positive cooperation, to compromise and to improve their environment. They react by punishing “free riders” who take advantage of them, even when this punishment comes at a personal cost, a feature not shared by the homo economicus. This social dimension leads economic actors to act outwardly, to meet others’ needs and satisfy others’ wants and to make interpersonal comparisons. In relation to the labour market, O’Boyle (1994) claims that the homo socioeconomicus as a worker has a need for work as such, not because of work instrumentality but as a consequence of his need of belonging (teamwork) and of his need for self-expressions (individual contribution), need that money alone cannot satisfy. This need can change over time and across people depending on changes in life circumstances, in forming incorrect perception of options, in facing adverse social and economic conditions. A scaling down of aspirations and motivations can occur and the process of adaptation leads to select new choices. In this view voluntary unemployment can arise to preserve freedom and individuality.

The CA applied to labour market decisions leads to investigate employment perceptions, opportunities or lack of them, while including the above factors. In an empirical paper Burchardt and Le Grand (2002) used the BHPS and Sen’s CA to distinguish non participation decisions that result from constraints beyond an individual controls’ from those decisions that are the results of individual’s preferences. In their study among standard labour economics variables, they include some social variables but they do not consider any behavioural and psychological factors and social relations. Their findings suggest that after taking into account several constraints, one tenth of the sampled non employed is unambiguously voluntary. Following Akerlof’s (1980) social norm mode, Clark (2001) tests the effect of social norms on unemployment status. He finds that in terms of social comparison, the psychological cost of unemployment is less severe when unemployment is the norm used in social comparison used by unemployed people and that those individuals who are hurt less by the unemployment experience are less likely to search a job and are more likely to preserve their status.

Economists have included social influence in labour market theories in various way ranging from segmented market theory (Bowles and Gintis, 2011) to human capital theory (Becker, 1976), and job search and information models (Mortenson , 2003). All these approaches share common features in relations to the structural “embeddedness of relations”: they assume that players are anonymous, they abstract from the history and positions of relations, and interpersonal links (ties) are typical and stylized. Granovetter (1985) points out that in this account of these social network leads to treat social influence as an external force rather than an on-going process in which people are affected and affect their own social environment. His theory of social embeddedness emphasises the importance of individuals’ social capital and the role and structure of specific individual’s personal relations (social ties) embedding economic life. Social networks and the strength of ties play an important role in labour market decisions (Goyal, 2007) and they can affect agents’ behaviour in three ways: through the type and quality of information they channel, through conditioning their members with punishments and rewards, and through expectations of how other members will act (trust). Due to the endogeneity of social effects (interdependence of preferences) empirical studies of social interactions are limited by the reflection problem pointed out by Mansky (1993), problem that reduces the ability to draw correct inference from the data. In a recent empirical study, Cappellari and Tatsiramos (2010) took this aspect into account and estimate the effect of social network on job finding rates by using a direct measure of social interactions. Despite the limitation of BHPS in providing network quality information, they were able to show that social connections operate as mechanism to channel information and that a higher number of employed friends is associated with a higher probability of becoming employed and that those who find a job via social connections have also a better chance to maintain an employment status.

To summarise: several empirical studies have tested traditional labour market model alongside with social network analysis to find that personal contacts are an efficient way of finding jobs and that the strength of ties matter. It has also been noticed that psychological predispositions influence sociality. Extraverted types have larger groups with more diverse elements, and tend not to be inclusive while individualist types, with high level of neuroticism tend to have smaller networks with more weak ties, and tend to keep their close network partners separate. (Kalish and Robins, 2006). This leads us to consider the other dimension of the homo socialis: his personal sphere

## 2.2 *Homo Humanus: personal sphere*

The rational economic paradigm, predicts that people make choices in lines with their preferences. However, a large body of literature from BE and Psychology presents evidence about people’s “inconsistent” choices. Several reasons can contribute to display a perceived “incorrect rationality. Firstly decisions not necessarily reflect true preference because they can be affected by unaccounted subtle “internal” constraints such emotional states, personality traits, perception biases and fears of regret. Secondly preferences can have become “adapted” to unwanted and undesirable circumstances and shaped by social relations.

---

acknowledging that different people, cultures and societies may have different values and aspirations.”

Thirdly the cognitive reference framework used by agents to align preferences and choices is different from what economists have been assuming, especially under uncertainty, as theorized by Prospect Theory (Tversky and Kahneman, 2000). Research in different fields shows that an individual's preferences and decisions vary depending on life circumstances, emotional states, personality traits, and memories of past experience (Kahneman and Krueger, 2006) and cultural factors. In their theoretical paper, Dessi' and Zhao (2011) use available evidence on cultural differences to offer interesting insights on how economics and psychology interact and show that an oversensitivity to shame (a feature more pervasive in the Japanese than in the USA culture) would result in over-investing while overconfidence (more likely to be present in the USA business culture and practices) could actually result in underinvesting. An empirical application of Prospect Theory to labour market can be found in Goette, Huffman and Fehr (2002). By using a model of reference dependent preferences (RDP) they study how much loss aversion and diminishing sensitivity can affect workers' behaviour. They find that higher financial incentives increase labour supply but at the same time can cause workers to put less effort on the job.

We found these studies inspiring and we believe that labour market status and choices (particularly "inaction") can be explained by referring to some BE principles mostly in relation to how to form judgment (a person will form judgment about probability of finding a job based on perception and recollection of past events and experience and loss aversion) and how to make choices (a person's choices are influenced by the framing of options available, her reference point and her status quo, her personality and values and she will make decisions based on some simple rules of thumb called heuristic). Applying BE principles to labour market can help to explain some "irrational" behaviour as expression of low self esteem, fears of precariousness of jobs, conformity to norms, negativity dominance effect (prospect of financial losses in giving up government benefits, looms bigger than prospect of financial gains of labour income). Enlarging the set of individuals' constraints to include socio and personal factors, it enables our agents either to regain rationality (intentional and instrumental) or bounded rationality, but most importantly, independently of the degree and class of rationality, it enables our agents to be more "human" and hence credible than the mechanic, mathematically predictable homo economicus and to be much closer to us than what the homo economicus actually is. This improved "closeness" is not confined to positive analysis but it is vital to design more informed government policies, capable of taking into account people's reference points and the role of social influence, so as to devise intelligent policy framing and nudges.

### 3. Empirical Approach: the Variables

We present here the variables we used in our models to take into account perspectives and angles of the interdisciplinary approach discussed above. The BHPS provides a broad and detailed range of information so some of the variables we used were directly extracted from the survey. However to control for personal characteristics and social factors many other variables ought to be created either as combinations of existing variables or as interaction terms. We organized them in "direct factors" and "interaction terms" and they are fully described in the appendix (Table A.1 and Table A.2). Due to the novelty of these variables, we think it is important to describe them accurately so as to facilitate the interpretation of the results later in section 5.

#### 3.1 Variables: direct factors

In line with the CA, we propose to explain labour markets statuses and choices by looking at three main conversion factors (personal characteristics, psychological factors, and social factors) that can affect an individuals' real opportunity set (refined functioning set) and thus, ultimately, influence her achieved functionings (attainments) by acting either as constraints or opportunities. The first set of factors are grouped under the umbrella of "labour market variables or human capital factors" since they are typically included into standard labour market models. These variables are: age, education, employment history, parents' employment and non employment status, physical condition, marital status, etc. The second set of conversion factors includes variables that capture BE principles (such as loss aversion, status quo, confidence), variables that reflect personal beliefs and values, and variables that are related to psychological traits and subjective perception of well being. The third set refers to the respondents' social characteristics, social capital and strength of embeddedness and social relations. Social norms and "close ties" represent vital additional elements of the analysis. The new identified constraints interact with each other in contributing to shape agent's decisions.

The standard labour economic variables include the following (0,1) dummy variables to account for: ethnicity (*Bme* for black or minority ethnic), age (young people age 21-24 (*Age2124\*\**), those aged 25-49 (*Age2549*) and older people aged 50-64 (*Age5064*)), educational qualifications (no qualifications (*Noquals*), at least one GCSE or equivalent (*Gcse*), at least one A-Level or equivalent (*Alevel*), more than A-levels (*Higher*)), parenting a child under 12 years old (*Child012*), having a partner who is employed (*Partneremp*), having a work limiting health condition (*Rhlltw*), being a lone parent (*Loneparent*) and carrying some kind of caring responsibilities for children, disabled or elderly people (*Responscare*), independently of labour market status. In addition we have considered two dummies as historical indicators of labour market attachment of the respondent's parents at the time when the respondents were fourteen years old (*Mumnotwork*, *Dadnotwork*).

Variables related to the labour market are included to account for: the number of employment/unemployment spells experienced in the year of the survey (*Empspells*) and (*Unempspells*), promotional opportunities of a job (*Rjbopps*),

---

\*\* As the sample is restricted to women only we have excluded those age 16 to 20 given the simultaneous nature of various life course events: labour market participant, entry to young motherhood and education/training, for example for a young mother caring and possibly education, for a young student the complication of part-time employment, making the direction of causality more difficult to assess within the age group. This age group is considered within another paper when looking at men where the carer category is virtually nonexistent.

occupational pension scheme (*Rjbpen*), receiving maintenance (*Maintenance*) or disability benefit (*Disben*). To capture non linear effect of labour market experience, we added the squared values of employment and unemployment spells (*SQemplspell*) and *SQunemplspell*). The variables (*Logrfyri*), (*Logrfyrl*), (*Logrfyrnl*) are logarithmic transformations of respectively annual investment income, earnings from labour income and earnings from non labour income, such as: benefits, income support, pensions. The variable (*Reswage*) is the declared reservation hourly pay for non-workers. Finally (*Prospect*) is a derived variable defined as the difference between the estimated (counterfactual) labour income of non workers and their estimated non labour income. This variable should capture the extent of prospective financial gains or losses of changing labour market status into employment when not employed.

The BE variables, proxies for personal attitudes and propensions are included in levels and also in terms of pairs of gain and losses to take into account Prospect Theory's principle of asymmetric reaction to losses and gains. Level and changes of the attributes are derived from different sections of the BHPS and higher values indicate a stronger presence of the attribute and of its change. So for instance levels of *Optimism*, *Risk* indicate how respondents have felt recently, while the variables *Gainoptimism* and *Gainconfidence* indicate whether respondents have experienced recent improvement in mental and physical well being and in self confidence.<sup>††</sup> To take into account the loss aversion principle and capture the negativity dominance effect (people act more to avoid losses than to obtain gains) we added the variable (*Prospectpos*) which includes only prospective financial gains (e.g. only positive values of the variable prospect). The coefficient of this interaction term would indicate the differential (asymmetric) effects of facing prospective financial gains in changing labour market status into employment.

Psychological traits are indirectly derived from a set of questions that allowed us to create indexes for the Big Five Traits. However, only conscientiousness and extraversion (*Consci* and *Extravert*) were statistically relevant. Again higher values indicate stronger presence of the trait. Values are derived from a set of questions that ask about the importance of having certain things in life: including: importance of having children, good partnership and good friends (all used to derive *Vfamilylife*) and importance of wealth (*Vwealth*) and of health (*Vgoodhealth*). In all cases, the larger the value the greater importance the individual places on this value.

The satisfaction variables are also included in levels and in terms of pairs of gain and losses. All of these variables are derived from the battery of life satisfaction questions. In terms of levels of satisfaction the measure include: satisfaction with household income and house or flat (*Swealth*), satisfaction with job and amount of leisure time (*Sjob*), satisfaction with spouse or partner, social life, use of leisure time (*Sfamilylife*) and satisfaction with health (*Shealth*). A larger value corresponds to more satisfaction.<sup>‡‡</sup> Respondents' general level of satisfaction compared to previous year is used to derive whether the individual is more satisfied (*Moresatis*) or less satisfied (*Lesssatis*).

An agent's degree of exposure and embeddedness to her local surroundings may affect the influence that local area conditions have on her labour market choices and behaviour. A more embedded individual is likely to be more aware about local social norms and to be influenced by them. The variable (*Moreembed*) is a dummy variable representing those who report being most similar to those within their local neighbourhood, reporting belonging to the neighbourhood, having local friends, obtaining advice locally and feeling similar to their neighbours. Whilst the local area may have some influences on the individual it is likely that closest friends may have a stronger influence in terms of employment. The BHPS asks a range of questions about the respondent's three closest friends including how frequency of contacts and whether each friend is employed or not. It is therefore possible to calculate a network social norm derived on the worklessness rate of the respondent's three closest friends. *Propnetemp* is the proportion of the reported friends who are employed and *Propnetnotemp*, its complement (the proportion of the reported friends who are not employed), while *Proponetinactive* is the proportion of the three closest friends who are inactive (not part of the labour force). A network non employment rate of above 30% can be considered as an indication of a friendship group characterized by a social norm of non employment.

We also included a set of variables related to opportunities and capabilities (other than income). The variable *Capabilities* is an index created adding five 0-1 dummy variables each one recording current access or ownership of some good and services (access to a car, to the internet, ownership or shared ownership of house, have a mobile phone, satellite and landline). We also use information on whether the individual feels financially better off or worse off than last year (*Betteroff*, *Worseoff*).

Finally to take into account future plans and constraints we included the following dummy variables: *Wantchange*, *Abletochange*, *Expecttochange*. The first dummy *Wantchange*, shows either a desire or an action to find a regularly paid job (full or part time) to change the status quo. The second dummy *Abletochange* indicates an immediate availability to take up a job. The third dummy *Expecttochange*, provides interesting insights into respondents' future reference points, job market attitudes and dispositions. A value equal to one indicates an interest in having a regular job and a belief that it is likely to find one within a year. The respondent's labour market interest is not aligned with her current status quo, which could be viewed or perceived as a temporary position that will change in the future.

---

<sup>††</sup> In creating and using these variables one has to keep in mind that the responses are subjective and respondents have reference dependent preferences and thus, depending on the position of the neutral status quo, changes can be perceived as gains or losses in a different way by different people.

<sup>‡‡</sup> Here again evaluating while experiencing (living an experience while being affected by current emotions without knowledge how the experience will end) is different from evaluating using memories and this difference has a role in influencing and distinguishing degrees of happiness versus well being. We used these variables without making such a distinction

### 3.2 Variables: Interaction terms.

We created three types of interaction terms. The first and the second types capture the interaction between labour market “norms” and the agent’s views about those norms, while the third set of variables captures the interaction between an agent’s willingness and availability to change her status quo and her aspirations for the future.

#### 3.2.1 Labour market “local social norm” and personal views.

In a standard approach, the regional or local “labour market social norm” (ie. high or low rate of worklessness) provides direct information on local economic constraints and opportunities which are most likely beyond agents’ controls. We assume that a regional non employment rate of above 30% can be considered as an indication of an area characterized by a labour market social norm of non employment.

Following Akerlof (1980), we assume that the non employment regional social rule interacts with an individual’s views and values in affecting her labour market decisions by either reinforcing or weakening her motivation and efforts in finding employment. Thus the effect of the social norm (high regional non employment) on agents’ choices is filtered by the agent’s preferences, values, motives and beliefs about the social rule itself. Personal views and aspirations (agents reference point), could influence an agent’s beliefs in adhering to the social norm and her emotional costs to conforming to it. For instance, a respondent who attributes little or zero importance to having a fulfilling job is more emotionally detached (or less emotionally attached) to the labour market than a respondent for whom having a fulfilling job is extremely important<sup>§§</sup> and this disposition would make it hard to engage her with the labour market.<sup>\*\*\*</sup>

Therefore in this study we take into account that local employment conditions can interact with the respondent’s labour market emotional attachment or detachment conditions (reference points) as determined by her beliefs, preferences, values and aspirations. These interactions between personal aspirations and local labour market norms, can prompt different attitudes towards changing own labour market status quo. To catch these possible interactive effects we created four mutually exclusive rank dummies (*ConformNW*, *DeviateNW*, *DeviateW*, *ConformW*) that assume value 1 when a condition is satisfied and zero otherwise.

The first dummy *ConformNW* has value one when a respondent with a “detached” attitude lives in an area with a high rate of local non employment (higher than the sample average). In this case the respondent’ reference point (personal view/attitude) is most likely in line with the local norm of worklessness . Therefore, a respondent falling in this category is likely not to suffer from conforming to the local norm of high worklessness (here the term *ConformNW*) and, if her status quo were the one of non employment, a change of it would be difficult to promote and implement.

The second dummy *DeviateNW* differs from the category above in one aspect: the respondent values having a fulfilling job. In this case, the respondent’s aspiration and motivation are not in line with the dominant social rule of her environment (worklessness), so most likely she would suffer from conforming to it. The respondent’s reference point deviates from the prevalent non working rule (hence the term *DeviateNW*) and because she has a more “attached” (or less detached) labour market attitude, it becomes easier to prompt changes of her status quo when this last one is not in line with the reference point and she is non working.

The third dummy, *DeviateW*, captures the case of a respondent with a “detached” attitude who lives in an area with a low rate of local non employment, lower than the sample average. In this scenario the respondent’s reference point deviates from the local working norm and she would not suffer from deviating from it. If the respondent’s reference point and status quo coincided then it could be difficult to engage her in changing the status quo, despite the working rule environment.

Finally the last dummy *ConformW* indicates the case of a respondent who values a fulfilling job and who lives in an area of lower non employment. The dummy captures the fact that the respondent’s aspiration and motivation are in line with the environment and that she would suffer from deviating from it. The reference point conforms with the prevalent working rule (hence the term *ConformW*) and this more attached attitude makes it easier to engage this type of respondent in changing her status quo when this last one is not in line with her reference point.

---

<sup>§§</sup> Attributing low importance to a fulfilling job can be explained in terms of personal motivation or in term of low aspiration and self- esteem. For instance, a woman may genuinely not be interested in working because she prefers and finds it more fulfilling to pursue other activities over working, such as for instance looking after children. However, in some other instances, a woman may consider a fulfilling job not to be so important because she perceives she cannot aspire to having a fulfilling job (cognitive dissonance bias).

<sup>\*\*\*</sup> If the respondent ‘s reference point (emotional attachment or detachment) is in line with her status quo and with a local social norm of non employment then this respondent would most likely not suffer from conforming to the social rule, and it would be hard to prompt changes of her status quo. On the other hand if a respondent is emotionally attached to the labour market (she attributes high importance to a satisfying job) and her status quo is non-employed and local social rule is high worklessness, the respondent would suffer from adhering to the social norm and hence she would be more disposed to changes her status quo into employment.

### 3.2.2 Labour market “social network norm” and personal views

Applying the same argument as for the environment, we believe that the labour market statuses of friends (ie. the social network norm) can influence a respondent’s labour market choices. This influence depends on the strengths of the “closeness” of these relations and on personal views, values, motives, working attitudes. Stronger ties (higher number of closest friends seen more often) with an active network (when all close friends are in the labour force) may increase the likelihood to “conform” to the “working” norm thus affecting our agent’s labour market choices (*Ginteractie* is the interaction term capturing this effect) and her dispositions of wanting to switch from worklessness into working or from inaction into labour force.

To quantify these possible effects we created four mutually exclusive dummies that are similar to the previous ones except that in this case respondents’ working aspirations and motivations are paired against the working “norm” of their three closest friends. Each of the four dummies (*ConformNetNW*, *DeviateNetNW*, *DeviateNetW*, *ConformNetW*) assumes value one when the condition occurs and zero otherwise.

The interaction term *ConformNetNW* is similar to *ConformNW* and it represents the condition of a woman with a “detached” attitude and with a high percentage of closest friends in non employment (at least 1/3 are workless). The not employed status of close friends can reinforce a “detached” attitude so that a respondent falling in this category may not suffer to conform to her friends’ workless status. When reference point and status quo coincided, it would be hard to prompt the women falling in this category changes into working.

The dummy *DeviateNetNW* is for a respondent who values a gratifying job and whose social connections are for a high percentage non employed (for example students). On the other hand, the dummy *DeviateNetW* represents that category of those women who are emotionally detached from the labour market but have all working close friends. It could be the case of some carers who may have worked before and chose to be at home. If status quo is not employment it may be difficult to prompt changes into employment. Finally the dummy *ConformNetW* is for the category of respondents who value a fulfilling job and whose closest friends are all employed. The social connection can reinforce their attitude and possibly these respondents would suffer if their status quo were not in line with their attitude, and they would be willing to change it.

### 3.2.3 Aspirations, present constraints and future plans

In addition to the above interaction terms, we created other variables, specific to the non-employed, to take into account attitudes, current constraints and future plans. We created four mutually exclusive variables for the non-employed women by combined the respondent’s interest towards changes into employment (*Wanttochange*) with her current availability (using the dummy *Abletochange*) and with her plans and expectations for the future (using the dummy *Expecttochange*).

The four mutually exclusive categories are: *NoChange*, *PessChange*, *HopeChange* and *ProChange*. *NoChange*: A dummy with a value 1 to indicate the position of those women who have not looked for a job, do not want or are not available to change status quo, and do not expect it to change in the future. Women falling in this rank are the most detached from the labour market (by choice such as carers and retired or by some sort of limitations such as disabled) and would not suffer to keep the status quo into the future.

The dummy *PessChange* has a value of one when a woman has been looking for a job but would not be immediately available to take it and does not expect to change her status quo within a year. This category represents those constrained women who are less detached than the previous rank because they have looked for a job in the past month but are pessimist about their labour market future. They may not suffer to keep the status quo because their reference point for the future is still the status quo.

The dummy *HopeChange* represents two categories of respondents: the category of those discouraged women who, despite having not looked and not expecting to find a job within a year, would like and would be available to work and the category of those optimistic women who, despite not having looked and not being available to work, expect to find a job in the future. Both categories show some sort of mild attachment to the labour market and would not suffer from changing the status quo

Finally the dummy *ProChange* represents those respondents who have looked for a job in the last month (showing a degree of attachment to the job market higher than the previous group) and are either readily available to change into employment or are expected to change it within a year. Their action and attitude indicate that their reference point, for the present or for the future, is different from the status quo and that hence they would suffer not to move from it.

## 4. Methodology and Econometric Models

We estimated two main types of models: the first type of model explains non employment versus employment statuses. This model is estimated as an endogenous switching regime where the switching criterion includes 4 relevant groups of variables (constraints and or opportunities explained above). The second type of model considers unemployment versus all other inaction statuses and investigates thus different categories on non working individuals (unemployment, students, disabled, early retired and carers). It is estimated as a multinomial model to provide probabilities of belonging to some specific category among the worklessness.

#### 4.1 The Switching Regime Model

In the switching regime the observed status of each individual is identified by the kind of earning she receives: non labour earnings versus labour earnings. Two equations describe the determinants of earning in each status and hence define the two regimes. In general, models that aim at explaining earnings face a self-selectivity problem. For some individuals labour market decisions represent optimal choices given their observed and unobserved preferences, for some others, their labour market status it is not the result of an optimal choice but rather the suboptimal results of (observed and unobserved) factors, and for some others it is just a random outcome. If this is ignored, people for whom it was random are compared to those for whom it was not (being it optimal or suboptimal). Self-selection decisions can thus arise if there is simultaneity between labour market decisions of an individual and its observed income. In our model this simultaneity is even more evident because income factors are explicit included in the switching criterion equation to represent the net gain or loss from the choosing between the two regimes. This class of self-selection models falls in the general class of endogenous switching regime models.

The switching criterion function which determines in which regime an individual falls is a latent variable with dichotomous realizations (1 for when an individual is not employed and 0 for when she is employed). This function has a “well being” or utility interpretation: it is the additional satisfaction that individual would get by choosing one regime instead of the other. The utility gain is partly random across individuals and partly depends on other specific factors. In particular, in our model the criterion function depends on expected benefit, (as measured by the differences between non work and work earnings), on personal constraints, psychological, social, environmental factors, values, opportunities. The switching equation is thus an endogenous switching since it has among the explanatory variables the differences in earnings between the two labour market statuses (working versus non working). The interest here is to understand whether or not relative earnings are significant in the decision function and to what extent. The model was estimated by using the full-information ML method, (FIML) to fit simultaneously the binary (switching equation) and the continuous equations (regime 1, and regime 2) and to correct for selectivity bias by taking into account of the correlations between all error terms. For a detailed explanation of the model see appendix

The model is of the following form:

- 1) Criterion function

$$I_i^* = (Y_{2i} - Y_{1i})\gamma + Z_i \delta + \varepsilon_i$$

$$I_i = 1 \text{ iff } I_i^* > 0$$

$$I_i = 0 \text{ iff } I_i^* \leq 0$$

$$Z_i = [LMV_i, BEV_i, Sat_i, SNV_i]$$

- 2) Regime 1 if  $I_1 = 1$

$$Y_{1i} = X_{1i} \beta_1 + u_{1i}$$

$$X_{1i} = [LMV_i, SNV_i]$$

- 3) Regime 2 if  $I_1 = 0$

$$Y_{2i} = X_{2i} \beta_2 + u_{2i}$$

$$X_{2i} = [LMV_i, SNV_i]$$

- 4)  $u_{1i} \sim N(0, \sigma_j^2) \quad j = 1, 2$

- 5)  $\varepsilon_i \sim N(0, \sigma_\varepsilon^2)$

- 6)  $\sigma_{12} = 0; \sigma_{1\varepsilon} \neq 0; \sigma_{2\varepsilon} \neq 0$

where:

$Y_j$  is log non labour income market

$Y_2$  is log labour income market

$LMV$  is a set of labour market variables

$BEV$  is a set of behavioural variables

$SatV$  is a set of subjective well being variables

$SNV$  is a set of social relations and network variables

The explanatory variables in the regime equations are subsets of the groups of variables explained in the variables session above. The switching equation has more explanatory variables since it accounts for opportunities and other social and personal factors relevant to make the decision. Among people who are more similar in relevant aspects and opportunities, the status of employment versus non employment can be a matter of personal preferences and choices, and unaccounted constraints. This latter point is indeed a limitation of our model: we may leave aside or not properly “measure” with our data, those variables that could be important in explaining people’s labour market status. Despite this and other limitations, we believe that this study pioneers a new interdisciplinary approach and can shed new light on the phenomenon of non employment.



The switching criterion is a Probit type equation and provides the estimated probability of being non employed. The decision equation shows which factors affect these probabilities and hence whether an individual will earn non labour or labour income. Because earnings themselves influence the decision function, the switching regression is an endogenous switching. Moreover, for some individuals the decision about labour market status is an optimal choice while for some other it is may be a condition they would have not have optimally chosen and it could be affected by external, exogenous and random factors. The endogeneity and selectivity biases are correct by estimating the three equations together and correcting for the selectivity bias. The test for selectivity bias is a test for

$$7) \sigma_{1\varepsilon} = 0; \sigma_{2\varepsilon} = 0$$

The explanatory variables included in the switching model and in the multinomial model, excluding interaction terms and squared terms, have been checked for the cross-correlation. The results for those found to be significant at 5% are reported in Table A.7 and in Table A.8 in the appendix. Noteworthy correlations, as highlighted, include the associations between:

- GCSE and higher education is expected to be high as those in higher education are likely to have GCSE qualifications,
- partner employed is associated with satisfaction with family life which is expected as satisfaction with family life includes a component about satisfaction with partner/spouse,
- employment spells is associated with satisfaction with job and occupational pension which is expected as those who move job are likely to have done so to improve their job and pension offer,
- occupational pension and opportunity of promotion are expected as likely to be features of a good job, which is also similar to the association between the opportunity of promotion and satisfaction with job,
- satisfaction with job and with family are expected since one component of satisfaction with job is amount of leisure time and one component of satisfaction with family is use of leisure time.

In all these cases the correlations whilst significant at 5% are between 0.4 and 0.5 and therefore each of the variables still has something independent to contribute to the model given the heterogeneity of the dependent variable.

#### 4.2 The Multinomial Logit Model

The second model we use aims to study different categories of inaction versus unemployment; in this stage we use a Multinomial Logit of the following form:

8)

$$P_{im} / P_{ij} = G(LMV_i, BEV_i, PROSPECT_i, SatV_i, SNV_i)$$

Where:

$P_{ij}$  and  $P_{im}$  are the probabilities for individual  $i$  to fall in the category  $j$  and  $m$ , with  $j=1,3,4,5$ ,  $m=2$  and with 1=retired, 2=unemployed, 3=student1, 4=disabled and 5= carer (not employed)

$G(..)$  is odds ratio derived from the Logit function

$LMV_i$  is a set of labour market variables for individual  $i$

$BEV_i$  is a set of behavioural variables for individual  $i$

$PROSPECT_i$  = prospect of financial gains of losses for individual  $i$  (i.e. theoretical expected benefits of losses) of changing status from worklessness into employment obtained from the previous switching models; this variables is an instrumental variable for differential earning.

$SatV_i$  is a set of subjective well being variables for individual  $i$

$SNV_i$  is a set of social relations and network variables for individual  $i$

The variables included in the multinomial logit model, excluding interaction terms and squared terms, have also been checked for the cross-correlation between the independent variables. The results for those found to be significant at 5% are reported in Table A.8 in the appendix. Noteworthy correlations, as highlighted, include the associations between:

- the high correlation between the reservation wage and wanting to change status is only relevant for the retired women. Both variables are included in the model as the coefficients of each opposite signs in the model suggesting any possible multicollinearity could have moderated the scale of the coefficients rather than changing the sign of the coefficients of interest. Therefore each variable has an independent piece of information,
- age 50-64 and having a child aged 0 to 12 is expected to be correlated as older carers are more likely to have older children. However this is only significantly correlated for carers.
- health limited conditions are correlated with satisfaction with good health especially for the disabled. This is expected due to the confounding effect of poor health and is only important for the disabled.
- optimism and gain in confidence are correlated as expected however this is only important for those who are inactive and both variables are never statistically significant within any one groups model.
- satisfaction with wealth and good health are correlated but this is largely important associated with being in the disabled or student group, rather than a within group effect.

Overall with the exception of the reservation wage and wanting to change, the correlations are not very high and not important in the models for all groups of inactive women. This suggests the correlations are driven by the differences between the groups of inactive women rather than explaining difference within the groups.

## 5. Results and discussion

Full results of the two models (equations 1-6 and equation 8) are reported in Table A.3 and Table A.4 in the appendix. A prefix “Z” in front of a variable in Table 1 and in Table A.3 (in the appendix), indicates that the original variable has been standardized. For the second model, we did not use standardized variables. We used instead exponential values of X-Standardized estimated coefficients to compute factor changes in the odds ratios as reported in Table 4 and in Table 5. Here we discuss the main results obtained from two step procedure.

### 5.1 Results and discussion: Switching regime model

The Table 1 below summarizes the results of the first model (equations 1 to 6) by reporting only the coefficients statistically significant while Table 2 reports an elaboration of predicted probabilities of being non employed and employed as obtained from model (1-6).

TABLE 1 “Switching regime model results”			
Model 1 <sup>(a)</sup>	Regime 1 Non labour income	Regime2: Labour income	Decision function Being Not Employed
<i>Labour Market Variables</i>			
Age2124	-1.42		
Age5064			0.17(*)
Bme		-0.29(*)	
Rhlltw	0.40		0.26
ResponsCare	1.10	-0.25	0.30
Mumnotwork		-0.11	-0.13(*)
Partnetemployed	-1.16		-0.34
Gcse	0.35	0.23	
Alevel	-0.51	0.27	
Higher		0.64	
Zempspells		1.17	-1.16
SQzempspell		-0.33	0.11
Zunempspells	-0.18	-0.19	
SQzunempspell		0.03(*)	0.02(*)
Disben	1.07	-0.41	
Maintenance		0.21	
Rjbpen		0.54	-0.63
Rjbopps			-0.24
Zlogrfiyri	-0.27	0.08	
<i>Behavioural Variables , Values and Psychological Traits</i>			
Zgainoptimism			0.14
Zlossoptimism			0
Zrisk			-0.10
Zconsci	0.15(*)		0.08
Zextravert		-0.08	
<i>Satisfaction (subjective evaluation well being)</i>			
Zsjob			-0.80
Zsfamilylife			0.40
Moresatis			0.20
<i>Social relations, Preferences and Capabilities</i>			
Zpropnetnotemp	0.24		
Zpropnetemp		0.10	
ConformNW			0.39
ConformW			-0.14
Zcapabilities			-0.09
<i>Self-selection</i>			
Rho_1	-0.23		
Rho_2	0.78		

<sup>(a)</sup>The asterisk indicates a 10% level of significance

Estimates reported in Table 1 show that the earning equations are explained by some common and by some specific factors. Those common traditional labour economic variables produce in general opposite effects on the two types of earning: for instance, having caring responsibilities increases non labour income by 100% while it reduces labour income by 25% (in one case it affects benefit eligibility, in the second case it affects working hour availability); higher levels of education would progressively increase labour income but they produce contrasting effects on non labour income, with GCSE affecting non workers’ earnings positively and A levels affecting them negatively. This result is a “university effect” and can be explained by the presence of those non workers (university students) whose education is higher but whose income is comparable/or less than other categories of non workers.

Labour income is affected positively by employment spells and negatively by unemployment spells and exhibit non linear effects: for employment spells the overall trend is positive (as indicated by the coefficient of the linear term) but the negative coefficient of the quadratic term indicates that for each additional employment spell and up to a certain number of spells, labour income increases at a decreasing rate, but beyond a certain number of spells (which corresponds approximately to 3 employment spells) labour income starts decreasing. As expected, it is detrimental to be too often in and out the labour market. For unemployment spells the opposite occurs: one single unemployment spell reduces labour earnings because, as it is expected, it is related to the loss of income during the unemployment spell, however a repeated unemployment spell and to a maximum if two spells will actually be associated with a mild improvement in labour income, as if to indicate that the second spell is a result of choice to look and obtain a for a better job. <sup>†††</sup>

Unemployment spells affect also both types of earnings and, as expected, they reduce earning capacity of non workers as well as workers albeit for different reasons. We think that in addition to the factual reduction in earnings brought by losing a job, this variable can also catch additional economical or psychological factors caused by repeated unemployment experiences such as loss of skills, low esteem, fears of precariousness, painful memories; all these factors can further reduce motivation, and activism, contributing in this way to reduce earning capacity.

Other factors that affect both earning equations are: pension benefits and investment income. These variables, as expected, produce opposite effects on labour and non labour earnings: higher investment income increases labour earning capacity but reduces the non labour income one, catching a “wealth effect”.

There are also some specific factors that affect only non labour earnings and they have the expected signs: being younger, having limiting working disabilities and having a working partner are all factors that reduce non labour earning capacity (the latter result confirms that the benefit system encourages those in couples both to work and or both no to work). Being more conscientious and having a network of non working close friends increase non working earnings. <sup>‡‡‡</sup> These results seem to suggest that among the joblessness those who are more conscientious (in getting information, in filling in forms) and have friends in similar conditions (higher chances of sharing information) are better equipped to earn non working income.

Ethnicity is among those specific factors of the labour income equation and according to our results, black and minority ethnic females earn lower labour income than white females. The historical non-employment of the respondents’ parents suggests some degree of an intergenerational effect of non-employment on earnings and decisions. This effect is only significant for working females: this is expected as those working women with non employed mothers would have had a non working mother as a role model and may have been influenced by mothers’ behaviour to accept fewer hours of work or look for less time demanding jobs. Equally this could be a cohort effect with younger women more likely to be attached to the labour market than their older counterparts who were more likely to have a more traditional female role in the family and labour market. Finally, having a job with “good“ features such as occupational pensions and having employed close friends increase earning of working females while extraversion lowers earnings. <sup>§§§</sup>

Interestingly, our results on social influence indicate that non workers are affected by a network of non-working close friends while employed are affected by a network of employed close friends suggesting that people tend to associate themselves with friends with similar labour market and earning experiences. Of course one could question the causality of this relationship.

The test for selectivity bias shows that for both correlation coefficients the null hypothesis is rejected indicating the presence of selectivity. The negative coefficient of the first correlation coefficient in equation 7) indicates that those females who self select not to work are worse off than the average non worker female. What is the meaning of this? Choosing or being selected into non employment implies a loss of earning capacity in terms of receiving a non labour income which is lower than what a random female from the non worker sample would have earned. Who are the female who choose or are selected into non employment? Mainly two categories: those for whom, given their personal characteristics and situation, non working is an optimal/satisfying decision in line with their preferences of being carers, students, early retired and those for whom it is a sub-optimal outcome and they become selected into the condition because of their personal (observed and unobserved) characteristics and their vulnerability to adverse economic conditions.

Due to the endogeneity built in the choice model, most of the variables we described for the earning equations appear in the switching equation as well. However many other variables are specific to the switching criterion so they affect earning only indirectly. When variables appear in the switching criteria and in the earning equations, such as the traditional labour market

---

<sup>†††</sup> Of course we are not able to tell from the data what initiated this change in employment/unemployment spell, but it is reasonable to think that the chosen moves are likely to be associated with improvements in earnings whilst involuntary moves one associated with loss of earnings.

<sup>‡‡‡</sup> Our “conscientiousness” variable is a proxy that by construction could capture a sort of “environmental and financial conscientiousness” and the result can be related to the more pronounced necessity to “conserve” and be cautious about money of non worker female relative to employed females

<sup>§§§</sup> This is a well known result related to the kinds of jobs more congenial to extraverted types such as the performing arts and self-employment.

variables, we expected and obtained consistency of signs and effects.<sup>\*\*\*\*</sup> Interestingly, the only exception is the variable *Mumnototwork* whose coefficients indicate that having had a non working mum affects positively the decision to be employed but it affects negatively the level of earning once employed. This effect could be a consequence of the change in employment status and the role in the household for women over the past 30 years.

The next set of variables is a set of some BE variables that affect the probability of but not the level of earnings. These specific variables are gain in optimism and attitude towards risk. The results show some interesting points: bigger gains in optimism (an increase in physical and mental well being such as enjoying more life, feeling happy and feeling less stressed) are associated with an increase in probability of non employment, while loss of optimism does not produce significant reactions. Thus ironically gains in optimism can produce the same results as low self esteem but for opposite reasons because these gains can produce an optimism bias.<sup>††††</sup> A stronger attitude to take more risk has opposite effect and reduced the probability of being not employed. This result is not surprising and it may indicate that while some people choose optimally their status, some others who find themselves in the non working status, may adapt to the status quo (and feel not unhappy about it) and they are less prone to take risk of leaving it for fear of disappointment. For instance, those in long term unemployment may postpone or reduce efforts to look for a job for fear of the risk of not to be able to find it.

These results are also confirmed and reinforced by the sign of life satisfaction variable (*Moresatisf*). Higher level of satisfaction is associated with higher probability of non employment. An asymmetric effect is also confirmed here: similarly for what we observe in gain of optimism people react to an increased satisfaction but they do not react to a decrease level of satisfaction. In other words, people adapt to their status quo and are more “sensitive” to things and events that confirm it and less “sensitive” to events that would prompt and stimulate changes as suggested by Prospect Theory indicating the presence of a “confirmation bias”. Women place also importance to family satisfaction and this latter variable acts as a constraint by reducing the probability of employment. Low satisfaction with past or present work also discourages efforts to be employment and reinforces the status quo.

The last set of variables is related to attitudes/dispositions/preferences about labour market social norm and set of capabilities. This latter variable is a proxy for opportunities and functionings (achieved capabilities) and as expected, a reduced value of this variable increases the probability of non working, acting as a constraint. Some of the achieved functioning can be affected by the labour market status itself. However, because our variable is based on “access” to capabilities rather than on ownership, this possible endogeneity issue is actually much attenuated. The interaction terms between individual’s emotional attachment/detachment and regional social rule (the variables *ConformNW* and *ConformW*), produce the expected effects. As explained, *ConformNW* represents disposition of those people happy (or not unhappy) with their status, in the sense that they “conform” or “fit” with the local social rule of high regional level of non employment because for them having a fulfilling job has little importance or none. Thus, not surprisingly, having this type of reference point it increases the probability of non employment. The second variables *ConformW* captures the views of those who are more emotionally attached to the labour market (they value a fulfilling job) and who are surrounded by local employment. The effect of this variable is to reduce the probability of non employment because people with these preferences fit with the local social norm and behave to conform to it. Interestingly, the presence of these two interaction terms suggests that the interaction effects between personal working attitude and views and social norm are produced when both variables “aligned” in the same direction, hence reinforcing each other. In other words, environment matters in reinforcing personal attitude producing a sort of confirmation bias effect.

The switching model is also used to calculate overall predicted probabilities of being non employed and to compare them to sample mean. Following a similar approach as in Burchard and Le Grand (2002), we compared each respondent’s estimated probability against the estimated sample mean and defined as high probability (of being non employed) a probability that is above this mean, and as low probability one that is below it. By mapping high and low probability against actual status, we identified four types of individuals: Type High probability of non employment and actually non employed; type high probability of being non employed and actually employed; type low probability of non employment and actually non employed and finally type low probability of non employment and actually employed. The interesting cases are those when predicted probability of being of a certain type differs from actual status, since this discrepancy can be due either to unaccounted, unobserved constraints, or to personal choices and efforts. To account for the value of the first row of the table shows the results when the switching model includes only the traditional labour market variables (the 19 variables indicated in the first group “Labour Market Variables” in Table 1) while the second row reports the figures for the full “multidisciplinary” model.

---

<sup>\*\*\*\*</sup> In other words we expected that the effects of these variables on the probability of non employment are either the same as those produced on non labour earnings or they are nil, and that they are either opposite to those produced on labour earnings or nil.

<sup>††††</sup> An optimism bias causes people to overestimate the likelihood of good things happening rather than bad things so they believe that they are less at risk of experiencing a negative event compared to others.

TABLE 2 “Female/Male Switching models (Non Employed/Employed)” (row percentages)												
	Estimated Mean %		Sample		Type: High probability		Type :Low probability		Status: Non Employed		Status: Employed	
	Non Empl %	Empl %	Non Empl %	Empl %	Non Empl %	Empl %	Non Empl %	Empl %	Type High %	Type Low %	Type High %	Type low %
PARTIAL MODEL (4510)	29.5	70.5	32.4	67.6	94.7	5.3	6.3	93.7	86.2	13.8	2.3	97.7
FULL MODEL (4184)	31	69	30.8	69.2	92.3	7.7	3.0	97.0	93.2	6.8	3.5	96.5

**Legenda**  
 Estimated mean = Average of estimated probability of being non employed or employed  
 Sample: sample percentage on non employed and employed

Type : High probability, non employment = high predicted probability of being non employed, and actually in non employment; category: *given the prediction, behaviour in line with predicted*

Type : High probability, employment = high predicted probability of being non employed, but actually in employment; category: *given the prediction, behaviour not in line with predicted (employment against the odds)*

Type : Low probability, non employment = low predicted probability of being non employed, and actually in non employment ; category: *given the prediction, behaviour not in line with predicted(possible voluntary non employed)*

Type : Low probability, employment = low predicted probability of being non employed, and actually in employment; category: *given the prediction, behaviour in line with predicted*

Status: non employed: Type High = % of sample non employed with high predicted probability of being non employed ; *prediction in line with behaviour, among the non employed (non employed correctly predicted)*

Status: non employed: Type Low = % sample of non employed with low predicted probability of being non employed ; *prediction not in line with behaviour, among the non employed (non employed predicted to be employment)*

Status: employed: Type High = % of sample employed with high predicted probability of being non employed; *prediction not in line with behaviour among the employed (employed expected to be unemployed)*

From looking at Table 2 we can notice that our model tracks the sample mean very closely, and the average estimated probabilities are virtually the same as the sample percentages. Table 2 reports the results for each nested stage and for gender. First of all, we can notice that the full model tracks the sample mean very closely (the average estimated probabilities of the full model are virtually the same as the sample percentages) and the performance has improved when we moved from the traditional approach into the multi dimensional. In other words, as more dimensions are added (behavioural, subjective well being, social) an increased number of females are identified as “constrained” or affected by additional dimensions. Reflecting on this result, we can say that new constraints and opportunities cumulate with old traditional ones to give a richer and more refined view of factors affecting non employment. Adding new variables to allow for more constraints and opportunities helps to recognize better status within “similar” groups (people with similar characteristics and constraints and hence similar high or low probability) and to identify more accurately those people whose status in not in line with the predicted (being employed against the odds or being voluntary non employed).

By looking at the status within “similar” groups we can see that the full model offers the following picture: 93.2% of the non employed were predicted to be have high probability to be in this status (the non employed account for the 92.7% of all people with high probability of being so) and that 96% of the employed were predicted to have a low probability of non employment (the employed account for the 97% of all people predicted to be employed). Thus, the figures of the full model are slightly different from those obtained using only a traditional approach suggesting that a richer approach with BE variables, social factors, etc. could be a promising route to identify better those people whose status in not in line with the predicted probabilities: those people who are employed against the odds (the employed who have high probability of not being employed) and those people who are “voluntary” non employed (the non employed with low probability of being so).

When we consider the former group, we can see the percentages related to this typology of respondents increases as we move from the partial into the full model (from 5.3% to 7.7% and from 2.3% to 3.4% in the last column). These increases indicate that a richer approach allows us to obtain the following: firstly, to add to those “lucky” employed as identified by the traditional human capital characteristics, those individuals who, according to their preferences, values, social factors, would prefer not to be employed, and secondly, to recognize better that the status of those “lucky” employed as identified by the traditional model, can actually be explained not only in terms of financial needs but also in terms of personal values, aspirations, determination, social influence. A similar conclusion can be reached by looking at the “voluntary non- employed” category (those who are jobless but are predicted not to be so).

The decreases in the relevant percentages related to this category (from 6.3% to 3% and from 13,8 to 6.8% in the last column), can be interpreted as follows: as we consider personal factors such as values, satisfaction, preferences and social influence, we are able to recognize better than more people may prefer their non employment status not to work so that the “real involuntary non employed “ are fewer than the traditional approach would suggest (6.8% in Table 2 is indeed closer 7.6% than 13.8% where 7.6% is the sample unemployed figure reported in Table 3).

### 5.2 Results and discussion: the Multinomial Logit Model

In tables 1 and 2 the focus was on non-employment. However non employment has a range of types including those actively seeking work and there part of the labour force (unemployed) and those not necessarily actively seeking work and defined as the inactive (those in education and training, those who are disabled, those who are early retired and those who have caring responsibilities). Our results suggest that for some people status is a choice sometimes even against the odds and for other is a suboptimal condition due to personal constraints (they are selected into the condition), to unaccounted constraints or to random factors. Table 3 is a statistical summary of the non employed sample and tables 4 and report the results of a multinomial logit regression where the unemployed who are the most attached group to the labour market (and possibly those who do not chose their status), are taken as the reference category. The full results of the model (equation 8) are reported in the appendix in Table A.4. Here, Tables 4 and 5 present a re-elaboration of those results in terms of factor changes of the odds of being in one category versus an alternative category. It is important to notice that some of these groups are age related (students are young, early retired are old) so the age component is already built into the model and accounted in this way.

A quick look at Table 3 shows that our sample is mainly composed by mature and old people (young people represent just a small percentage - 5% -of the sample) and that being carer is the prevalent or the second most important category within each age group. We decided to compute factors' changes according to importance of category within each age group and also across age groups.

<b>TABLE 3 “Sample composition: Female not employed”</b>				
Frequencies <b>WITHIN</b> each age group	Young 21/24	Mature 25/49	Old 50/64	Total
Carers	33 (50.8%)	359 (62.1%)	122 (20.4%)	514 (41.4%)
Unemployed	16 (24.6%)	60 (10.4%)	18 (3%)	94 (7.6%)
Disabled	2 (3%)	116 (20.1%)	111 (18.6%)	229 (18.4%)
Retired	0	8 (1.4%)	344 (57.5%)	352 (28.4%)
Students	14 (21.6%)	35 (6%)	3 (0.5%)	52 (4.2%)
	65 (100%)	578 (100%)	598 (100%)	1241 (100%)
Frequencies <b>ACROSS</b> age groups	Young	Mature	Old	Total
Carers	33 (6.4%)	359 (69.8%)	122 (23.8%)	514 (100%)
Unemployed	16 (17%)	60 (63.8%)	18 (19.2%)	94 (100%)
Disabled	2 (0.9%)	116 (50.6%)	111 (48.5%)	229 (100%)
Retired	0	8 (2.3%)	344 (97.7%)	352 (100%)
Students	14 (26.9%)	35 (67.3%)	3 (5.8%)	52 (100%)
	65 (5.2%)	578 (46.6%)	598 (48.2%)	1241 (100%)

The factor change in the odds indicates by how much the odds of belonging to one category relative to the alternative are multiplied when that characteristic is present. Odds ratios across dichotomous variables can be compared. So a factor change equal to one implies that the presence of the characteristic or that a change in the explanatory variable - for continuous variables - does not alter the odds of being in a group relative to the alternative, a factor greater than one implies that the odds of being in a group relative to the alternative have increased by the factor itself while a factor less than one implies that the odds have decreased by the factor itself. In these latter case when the factor is less than one, to facilitate the reading of the result we indicate in parenthesis the factor for when the characteristic is not present or , in the continuous variable case, for when the value of the variable decreases instead of increasing.

By comparing categories, the traditional labour market variables confirm that having children and being a lone parent imply always an increase in odds of being a carer relative to any of the other categories (factor change in odds is always above 1). The prospect variable produces interesting results. Before analysing them it is necessary to explain how to read the factor change. To test for asymmetric effects of gain and losses, another variable is added (*Prospectpos*). This variable contains only the positive values of *Prospect* (cases when the agents would be financially better by changing into employment). To obtain the net effect of gains when *Prospect* and *Prospectpos* are both statistically relevant, it is necessary to add the two coefficients. The effect of the prospective financial losses is thus to be read directly by the estimated coefficient of *Prospect*. In Tables 4 and 5 when asymmetric effects are present, we report the net factor change for *Prospectpos* (to show the effect on odds of prospective financial gains) and in a different row, we report the factor change for prospective financial losses. To better indicate and understand that the factor change only refers to financial losses we indicate the factor change as for *Prospectneg*. The factor change shows directly how much the odds are multiplied when there are prospects of financial losses. Potential labour income gains would always decrease the odds of being carers versus any other category, particularly when the other categories are students and unemployed (i.e., those more potentially “attached” to the labour market), while prospective losses (of receiving a labour income lower than non labour income if carer became employed) would increase the odds of being a carer and hence to preserve the status quo. The only anomaly is when the alternative is the disabled category, but this category seems to be a peculiar one and the same anomaly is repeated when we compare them to the retired: the odds of the disabled are bigger than the ones of the carers and of the retired, in front of both prospective gains and losses albeit with different intensity, as if they were more anchored and less able to change the status quo when compared to the other “detached” categories.

The unemployed, who are part of the labour force and hence are clearly more attached to the labour market, do not present any “anomaly” and show an expected reaction to potential income gains. Moreover, in accordance with Prospect Theory’s predictions they also show some interesting asymmetric effects of gains and losses (asymmetric effects imply loss aversion and prompt a bigger reaction to losses than to gains). For the unemployed, factor changes behave as follows: potential income gains increase the odds of being unemployed rather than being a carer or a disabled person and the opposite occurs for potential financial losses due to labour income. These findings can be summarized as follows: as prospective income gains become bigger (as labour income becomes bigger and bigger relative to non labour income), it is more likely to be attached to the labour market than to be inactive. Vice versa: when facing increasing financial losses (when labour income become much smaller than non-labour income) then it becomes more likely to be inactive (not part of the labour force) than be part of the labour force.

Two things are worth noticing: first, the increase in the odds of the unemployment is bigger when the competing category is carer than when it is the disabled, and second, that due to the presence of asymmetric effect with the disabled category, the decrease in the odds of unemployment is much more pronounced (almost as twice as much) when the competing category is disabled. These results combined with the previous one about disabled, suggest that when we compare disabled with unemployed we can capture a part of discouraged unemployed who moved into inaction for economic consideration: they are better off receiving disability benefits rather than unemployment benefits. This is amplified by a benefit system in the UK that provides more financial support for the disabled than the non-disabled making inaction more financially rewarding. The results for the prospect variables overall suggest a role for in work benefits such as the tax credits system, the national minimum wage and benefit reforms as policy options to help make work pay and provide incentives to work.

Looking at the BE and social variables, the first thing to note is that there are some clear idiosyncrasies across the different types of joblessness as some variables are important for some groups but not for others. To take just one example is the variable measuring value for family life. The presence of this value increases the odds of being carers vis-a-vis all other categories. Other specific variable that increase the odds of being carers are the degree of embeddedness in local community and having stronger ties with close “inactive” friends (not all employed), although this last one feature holds when carers are compared to students but not when carers are compared to unemployed). The results suggest that policies focused on areas where high levels of inactivity is present, working with large friendship groups within these areas could be used to motivate groups of individuals into work.

Another characteristic that consistently produces the same result on reducing the odds of being carers relative to other categories is the variable *ConformNetW*: having a network of all employed close friends and preferring to be active is a feature that is more likely associated with students, retired and disabled than with carers. This feature represents situation of those women who have left their jobs to become mothers and are embedded in the community (maybe having a network of similar non employed friends). The fact that carers choose their status can also be seen through the effect of two other variables: the variable *Wantchange* which has a negative effect on the probability of being carers relative to unemployed (thus wanting to change is positively associated with unemployed but negatively related with carers) and the variable *HopeChange* which relates to future opportunities and actual constraints and actions. Not looking for a job but being actually able to change and/or expected to find a job in a year increases the odds of being students and early retired relative to being carers. This is not surprising because carers (due to choices or due to constraints) are relatively more detached from the job market than students and than those early retired women who still would like to work.

As expected the unemployed seem to value good health less than the retired and the disabled and relative to all jobless categories, they are more affected by desire of changing their status (although here we may be concerned about the direction of the causation). The odds of unemployed are also influenced by current available opportunities: an increase in availability of material capabilities and opportunities (such as a house, a car, the internet, a mobile phone etc..) increases the odds of belonging to other categories than being unemployed (with the exception of cares). This result is also confirmed by the fact that the unemployed are more “sensitive” than any other categories to loss in wealth in the past. On the other hands, the retired

are positively associated with being financially better off than in the past when compared to carers and disabled and positively associated with the interaction term *NoChange*, which represents those women not interested, not available and not expecting to find a job. Hence, as expected, those retired who fall in this category would suffer less to keep their status quo than discouraged unemployed. This result finds that pension provision is an important policy aspect in labour market status, recent policy proposals to provide certainty on the value of the state pension and increasing the retirement age should help workers to plan more effectively for this transition out of the labour market.

The last Table 5 offers some additional interesting points related to attitudes typical of cycle of life (young/mature/old). There are some variables that are more specifically “age” related. For instance higher risk and having strong ties with jobless friends affect only categories of young /mature people but not the “old”. Health satisfaction affect more mature people while optimism, being better off financially than in the past, have larger proportion of inactive friends and desiring to keep the status quo in the future are all variables typically associated with the old (retired). It is interesting to look at their preferences for the future: among all categories they are those who are more definitely (strongest change in odds) convinced of not wanting to change their status. However, there are also old people (retired) hoping to change in the future, as if in this category of early retired, there were some “temporary” retired waiting to switch their status into employment.

Confirming what found with the previous switching model, the interaction terms seem to produce more effects when personal views and social influence are “aligned” than when they are dis-aligned and this is particularly true across the category of the “young“(students, unemployed and cares). For instance, having working close friends and wanting to conform to them (*ConformNetW*) increase the odds of being a student relative to being carer or unemployed. Vice-versa, having non employed friends and a more “detached” labour market attitude (*ConformNetNW*) increase the odds of being carers and unemployed relative to being students. These reinforcing effects across social factors and personal views suggest again the presence of a sort of confirmation bias: social influence is more effective across similarly minded people.

Overall our results indicate that the use of a cross disciplinary approach of labour economics, behavioural economics and social network analysis can generates significant benefits in terms of policy making and policy prescriptions because it provides useful insights into inaction that can better orientate the design of effective labour market policies. For instance a deeper understanding of how social networks impact worklessness decisions and attitudes, and affect employment perceptions, social mobility, and human capital investments, can have crucial implications for the labour market policies, subsidization of education and decision on unemployment benefits.



<b>TABLE 4 “Comparing CATEGORIES”</b>								
(Factor changes in odds ratios are computed using exponential values of X-Standardized coefficients)								
Factor change in odds of :	Carers versus Unempl. 5 to 2	Carers versus Students 5 to 3	Carers versus Disabled 5 to 4	Carers versus Retired 5 to 1	Unempl. versus Students 2 to 3	Unempl. versus Retired 2 to 1	Unempl. versus Disabled 2 to 4	Retired versus Disabled 1 to 4
<b>Labour vars</b>								
<i>Age2124<sup>(a)</sup></i>			4.31					
<i>Age5064<sup>(a)</sup></i>	2.34	22.21		0.04	9.49	0.02	0.38	19.31
<i>Prospect pos<sup>(c)</sup></i>	0.35	0.31	0.65 <sup>(d)</sup>	0.62			1.40 <sup>(d)</sup>	0.91 <sup>(d)</sup>
<i>Prospect neg<sup>(c)</sup></i>	2.89	3.25	0.48 <sup>(d)</sup>	1.62			0.17 <sup>(d)</sup>	0.30 <sup>(d)</sup>
<i>Reswage</i>				0.62		0.73		1.59
<i>Child012<sup>(a)</sup></i>	6.83	12.54	4.24	19.89				0.21
<i>Loneparent<sup>(a)</sup></i>	5.43	2.88	4.66	22.20				
<i>Rhllt<sup>(a)</sup></i>			0.10				0.11	0.15
<b>Behavioral /Social vars</b>								
<i>Vwealth</i>	0.70			0.81				
<i>Vfamily</i>	1.90	2.16	1.76	1.76				
<i>Vgoodhealth</i>				0.80		0.69	0.76	
<i>Swealth</i>		1.81		0.77	1.63	0.70		
<i>Shealth</i>			2.00	1.35			1.99	1.49
<i>Moresatis<sup>(a)</sup></i>							0.44	
<i>Gainconfidence.</i>		0.54	1.48		0.61		1.66	1.33
<i>Optimism</i>				0.70				1.52
<i>Risk</i>		0.32			0.31			
<i>Betteroff<sup>(a)</sup></i>				0.44				2.36
<i>Worseoff<sup>(a)</sup></i>	0.51					1.87	2.18	
<i>Wantchange<sup>(a)</sup></i>	0.29	6.23			21.6	8.30	3.34	
<i>ConformNetNW<sup>(b)</sup></i>		12.00			10.97			
<i>ConformNetW<sup>(b)</sup></i>		0.20	0.53	0.37	0.32			
<i>NoChange<sup>(b)</sup></i>				0.04		0.03		29.38
<i>HopeChange<sup>(b)</sup></i>		0.23		0.04		0.04		50.45
<i>Morembed<sup>(a)</sup></i>	1.98	2.6					0.47	
<i>Propnetinact</i>				0.59		0.57		1.51
<i>Ginteractie</i>	0.73	2.25			3.06			
<i>Capabilities</i>	1.69				0.44	0.61	0.63	

<sup>(a)</sup> These variables are dichotomous characteristics. For these variables the odds ratio shows by how much the odds of belonging to one category relative to the alternative are multiplied when that characteristic is present. Odds ratios across dichotomous variables can be compared

<sup>(b)</sup> These variables are polychotomus characteristics and are treated as rank variables. For these variables the odds ratio shows by how much the odds of belonging to one category relative to the alternative are multiplied when the individual is having that rank versus all the rest (i.e. if the rest is not relevant) . Odds ratios across polychotomus variables can be compared.

<sup>(c)</sup> The variable *Prospect* indicates the prospect of gains and losses in income. This variable has positive and negative values. The variable *Prospectpos* is derived by *Prospect* by selecting only its positive values to isolate the cases when agents would be financially better off and hence gain by changing her status. Thus to obtain the net effect of gains (positive values of the variable *Prospect*) we added the coefficients of *Prospect* and *Prospectpos*. The effect of negative values of *Prospect* (losses) is given directly by the estimated coefficient of *Prospect*. In this table is reported taking into account that the value of *Prospectneg* are negatives and hence it is reported as the inverse of the original estimated coefficient and it can be interpreted directly by how much the odds are multiplied in front of financial losses. Asymmetric effects arise when the two coefficients are statistically different meaning that probabilities of statuses respond differently to prospects of gains and losses. To obtain the X-standardized coefficients of both prospects of gains and losses, we used the standard deviation of the original variable *Prospect* (multiplied each coefficients by the Standard deviation of *Prospect*).

<sup>(d)</sup> net effects

<b>TABLE 5 “Comparing AGE GOUPS”</b>								
(Factor changes in odds ratios are computed using exponential values of X-Standardized coefficients)								
Factor change in odds of :	More typical for young and mature	More typical for young and mature	More typical for young and mature	More typical for mature	More typical for mature	More typical for old	More typical for old	More typical for old
	Students versus Unempl. (3 to 2)	Students versus Carers (3 to 5)	Carers versus Unempl. (5 to 2)	Carers versus Disabled (5 to 4)	Unempl. versus Disabled (2 to 4)	Retired versus Unempl. (1 to 2)	Retired versus Carers (1 to 5)	Retired versus Disabled (1 to 4)
<b>Labour vars</b>								
<i>Age2124<sup>(a)</sup></i>				4.31				
<i>Age5064<sup>(a)</sup></i>	0.11	0.05	2.34		0.38	51.00	21.8	19.31
<i>Prospect pos<sup>(c)</sup></i>		3.25	0.35	0.65 <sup>(d)</sup>	1.40 <sup>(d)</sup>		1.62	0.91 <sup>(d)</sup>
<i>Prospect neg<sup>(c)</sup></i>		0.31	2.89	0.48 <sup>(d)</sup>	0.17 <sup>(d)</sup>		0.62	0.30 <sup>(d)</sup>
<i>Reswage</i>						1.36	1.60	1.59
<i>Child012<sup>(a)</sup></i>		0.08	6.83	4.24			0.05	0.21
<i>Loneparent<sup>(a)</sup></i>		0.35	5.43	4.66			0.05	
<i>Rhllt<sup>(a)</sup></i>				0.10	0.11			0.15
<b>Behavioral Social vars</b>								
<i>Vwealth</i>			0.70				1.24	
<i>Vfamily</i>		0.46	1.90	1.76			0.57	
<i>Vgoodhealth</i>					0.76	1.45	1.25	
<i>Swealth</i>	0.61	0.55				1.43	1.30	
<i>Shealth</i>				2.00	1.99		0.74	1.49
<i>Moresatis<sup>(b)</sup></i>					0.44			
<i>Gainconfidence</i>	1.64	1.85		1.48	1.66			1.33
<i>Optimism</i>							1.42	1.52
<i>Risk</i>	3.17	3.05						
<i>Betteroff<sup>(b)</sup></i>							2.26	2.36
<i>Worseoff<sup>(b)</sup></i>			0.51		2.18	0.54		
<i>Wantchange<sup>(a)</sup></i>	0.04	0.16	0.29		3.34	0.12		
<i>ConformNetNW<sup>(b)</sup></i>	0.09	0.08						
<i>ConformNetW<sup>(b)</sup></i>	3.11	4.98		0.53			2.72	
<i>NoChange<sup>(b)</sup></i>						34.82	25.55	29.38
<i>HopeChange<sup>(b)</sup></i>		4.35				23.42	25.64	50.45
<i>Morembed<sup>(b)</sup></i>		0.38	1.98		0.47			
<i>Propnetinact</i>						1.76	1.70	1.51
<i>Ginteractie</i>	0.33	0.44	0.74					
<i>Capabilities</i>	2.25		1.69		0.63	1.62		

<sup>(a)</sup> These variables are dichotomous characteristics. For these variables the odds ratio shows by how much the odds of belonging to one category relative to the alternative are multiplied when that characteristic is present. Odds ratios across dichotomous variables can be compared

<sup>(b)</sup> These variables are polychotomus characteristics and are treated as rank variables. For these variables the odds ratio shows by how much the odds of belonging to one category relative to the alternative are multiplied when the individual is having that rank versus all the rest (i.e. if the rest is not relevant) . Odds ratios across polychotomus variables can be compared.

<sup>(c)</sup> The variable *Prospect* indicates the prospect of gains and losses in income. This variable has positive and negative values. The variable *Prospectpos* is derived by *Prospect* by selecting only its positive values to isolate the cases when agents would be financially better off and hence gain by changing her status. Thus to obtain the net effect of gains (positive values of the variable *Prospect*) we added the coefficients of *Prospect* and *Prospectpos*. The effect of negative values of *Prospect* (losses) is given directly by the estimated coefficient of *Prospect*. In this table is reported taking into account that the value of *Prospectneg* are negatives and hence it is reported as the inverse of the original estimated coefficient and it can be interpreted directly by how much the odds are multiplied in front of financial losses. Asymmetric effects arise when the two coefficients are statistically different meaning that probabilities of statuses respond differently to prospects of gains and losses. To obtain the X-standardized coefficients of both prospects of gains and losses, we used the standard deviation of the original variable *Prospect* (multiplied each coefficients by the Standard deviation of *Prospect*).

<sup>(d)</sup> net effects

### 5.3 Summary of main results of the study

We summarize here some of our main findings discussed above:

- Adding more dimensions (behavioural, social psychological) to the analysis improves predictions of labour market statuses because it enables to identify better the “constrained” females, and to predict better a female’s status within “similar” groups.
- Joblessness people who are more conscientious (in getting information, in filling in forms) and have friends in similar conditions (higher chances of sharing information) are better equipped to earn non working income. Similarly, working females whose close friends are employed show an increased earning capacity.

- Social influence works as follows: people tend to associate themselves with friends having similar labour market and earning experiences. Social environment matters in reinforcing personal attitude producing a sort of confirmation bias effect that suggests that social influence is more effective across similarly minded people.
- People adapt to their status quo and are more “sensitive” to things and events that confirm it and less “sensitive” to events that would prompt and stimulate changes (confirmation bias and optimism bias). Low satisfaction with past or present work also discourages efforts to be employment and reinforces the status quo.
- A stronger attitude to take more risk reduces the probability of being not employed. This finding can explain attitude of people in long term unemployment: they may postpone or reduce efforts to look for a job for fear of the risk of not to be able to find it.
- Prospective financial losses (of receiving a labour income lower than non labour income if a carer became employed) increase the odds of being a carer while potential labour income gains would always decrease the odds of being carers versus any other category, particularly when the other categories are students and unemployed (i.e., those more potentially “attached” to the labour market).
- Among the inactive females, carers are those who place high value for family life, are more embedded in local community and have stronger ties with close “inactive” friends, relative to the unemployed females, they seem to choose their status by having little interest in changing it.
- When comparing disabled with unemployed we can capture a part of discouraged unemployed who moved into inaction for economic consideration: they are better off receiving disability benefits rather than unemployment benefits.
- Retired have a unique feature among all categories to show two strong contrasting attitudes: one is hoping to change into employment in the future, as if in their actual condition were “temporary”, and another one is to be totally detached from the labour market and hence not interested at all in changing their status. This suggests that pension provision is an important policy aspect in labour market status, recent policy proposals to provide certainty on the value of the state pension and increasing the retirement age should help workers to plan more effectively for this transition out of the labour market.

## 6. Limitations and conclusions

In this empirical study we have used a new cross-disciplinary approach among labour economics, behavioural economics (BE) and social economics to explain agents’ functioning over employment, unemployment and across various inactivity categories in the labour market. Using concepts of capabilities and refined functioning proposed by Amartya Sen we develop and test a model of non-employment that is much broader than those usually estimated within labour economics. We find that, in addition to standard labour economics variables, BE and social factors are potentially important in explaining non employment. In addition there are important differences found between the inactive groups (in particular carers) which explains our focus on women, across the different types of inaction and between age groups.

Whilst the analysis presented above should be viewed within the context of some potentially important limitations. Firstly all of the measures used are not collected directly for the purpose but are derived variables constructed from data collected from a large household survey. This means that the data may not be measuring BE biases or does not capture psychological effects. Secondly the results clearly need to be considered within the content of the potential of endogeneity such as the endogeneity issue of social relations (Mansky’s mirror effect), and of other variables crossing the personal and social spheres. Having stated this clearly this also points to the potential for additional research in see if these effects could be truly considered as causal effects. This can be addressed once we move from the static model to the panel data where temporal dimension can be used to attempt to address these issues.

Despite the limitations, our results suggest that the proposed redesign of the benefit system and additional support for those not currently employed needs to allow for a degree of heterogeneity in the client basis. The existing Work Programme in the UK is supposedly designed to take account of heterogeneity in broad groups including: lone parent, disabled and young unemployed. A closer look at the work programme suggests that actual tailored support is limited and in fact the programme offered do not consider the potential benefits of exploiting social connections and insights from behavioural economics. This may explain the lack of benefit to the participants on the Work Programme, which recently reported that being on the Work Programme actual did not promote employment and in some cases actually reduced the chance of finding employment (DWP 2012). The results above suggest that a consideration of factors wider than the standard labour economic variable when designing labour market policies may provide fruitful returns. In terms of the Work Programme this would mean looking beyond the crude groups used: such as lone parent and disabled, taken from labour economics, to considering refined identification of support on a more individualised basis, informed by social connections and behavioural economics.

## References

- Akerlof, G. A., 1980. A theory of social custom, of which unemployment may be one consequence. *The Quarterly Journal of Economics* 94, no. 4:749-75.
- Becker, G.S., 1976. *The economic approach to human behaviour*. Chicago: University of Chicago Press.
- Bowles, S., and Gintis, H, 1998. Is equality passé? Homo reciprocans and the future of egalitarian politics. *Boston Review* 23, no. 6:4-35.
- Bowles, S., and Gintis, H., 2011. *Schooling in capitalist America*. 2nd ed. Chicago: Haymarket Books.
- Burchardt, T., and Le Grand, J., 2002. Constraint and opportunity: identifying voluntary non-employment. Working Paper no. 55, Centre for Analysis of Social Exclusion, London.
- Cappellari, L., and Tatsiramos, K., 2010. Friends' network and job finding rates. Working Paper no. 5240, Forschungsinstitut zur Zukunft der Arbeit (IZA), Bonn .
- Clark, A., 2001. Unemployment as a social norm: psychological evidence from panel data. Working Paper no. 17, DELTA (Ecole Normale Supérieure), Paris.
- Clark, D.A., 2006. The capability approach: its development, critiques and recent advances. Working Paper no. 32, Global Poverty Research Group, Oxford.
- Dessi', R., and Zhao, X., 2011. Self-esteem, shame and personal motivation. Working Paper no. DP8722, Centre for Economic Policy Research, London.
- Department for Work and Pensions (DWP) 2012. *The Work Programme: The First Year*. London, UK: HMSO
- Fehr, E., and Gächter, S., 1998. Reciprocity and economics: the economic implications of homo reciprocans. *European Economic Review* 42, (May) : 845-59.
- Finn, C. J., and Heckman, J. J., 1983. Are Unemployment and Out of the Labor Market Behaviorally Distinct Labor Force States? *Journal of Labor Economics*, 1, no. 1, (Jan): 28-42.
- Goette, L., Huffman, D., and Fehr, E., 2002. Loss aversion and labour supply. Working Paper no. 927, Forschungsinstitut zur Zukunft der Arbeit (IZA), Bonn .
- Goyal, S., 2007. *Connections: an introduction to the economics of networks*. Princeton, NJ: Princeton University Press.
- Granovetter, M.S., 1985. Economic action and social structure: the problem of embeddedness. *American Journal of Sociology* 91, no. 3:481-510.
- Kalish, Y., and Robins, G.L., 2006. Psychological predispositions and network structures: the relationship between individual predispositions, structural holes and network closure. *Social Networks* 28, no. 1:56-84.
- Kahneman, D., and Krueger, A. B., 2006. Developments in the measurement of subjective well being. *Journal of Economic Perspectives* 20, no. 1:3-24.
- Mansky, C. F., 1993. Identification of endogenous social effects: the reflection problem. *Review of Economic Studies* 60, no. 3:531-542.
- Mortenson, D. T., 2003. *Wage dispersion: why are similar workers paid differently?* Cambridge, MA: MIT Press.
- O'Boyle, E. J., 1994. Homo socio-economicus: foundational to social economics and the social economy. *Review of Social Economy* 52, no. 3: 286-313.
- Sen, A., 1980. Equality of What? In *Choice ,welfare and measurement*, ed. Amartya Sen. Oxford: Blackwell.
- Sen, A., 2002. Response to commentaries. *Studies in comparative international development* 7, no. 2:78-80.
- Tversky, A. and Kahneman, D., 2000. *Choices, values, and frames*. Cambridge, MA: Cambridge University Press.

APPENDIX

**Appendix TABLE A.1 “VARIABLES “ (extracted or created from BHPS)**

Human Capital	Personality	Job market Experience/ Status	Income	Values	Attitudes	Satisfaction	Social/ Embeddedness	Capabilities/ Opportunities/ Future
Age2124	Consci	Carers	Disben	Vfamilylife	Gainconfidencee	Moresatis	Moreembed	Abletochange
Age2549	Extravert	Disabled	logrfiyri	Vgoodhealth	Gainoptimism	Lesssatis	Lesseembed	Betteroffp
Age5064		Employed	Logrfiyrl	Vwealth	Lossconfidence	Sfamilylife	Propnetemp	Capabilities
Alevel		Empspells	Logrfiyrl		Lossoptimism	Shealth	Propnetinact	Expectotchange
Bme		Notemployed	Maintenance		Optimism	Sjob	Propnetnotemp	Worseoffp
Child012		Retired	Prospect		Risk	Swealth		Wantchange
Dadnotwork		Rjbopps	Prospectpos					
Gcse		Rjbpen	Reswage					
Higher		Sqzempspells						
Loneparent		Sqzunempspells						
Mumnotwork		Students						
Noquals		Unemployed						
Partneremployed		Unempspells						
Responscare								

**INTERACTION TERMS**

Environment (Regional/Local labour market social norm)	Social connections and the network's social norm	View on Future
ConformNW	ConformNetNW	NoChange
DeviateNW	DeviateNetNW	PessChange
DeviateW	DeviateNEtW	HopeChange
ConformW	ConformnetW	ProChange
	Ginteractie	

<b>Appendix TABLE A.2 “EXPLANATION THE STATISTICALLY RELEVANT VARIABLES FO R THE FEMALE MODEL”</b>	
<b>List of Variables relevant for the estimates of the Female Model</b>	
Age2124	Dummy variable: 1 if aged 21-24, 0 otherwise.
Age5064	Dummy variable: 1 if aged 50-64, 0 otherwise.
Alevel	Dummy variable: 1 if A-level is highest qualification, 0 otherwise.
Betteroffp	Dummy variable: 1 if better off than last year, 0 otherwise (improvement in financial position since last year);
Bme	Dummy variable: 1 if black or minority, 0 otherwise.
Capabilities	Index variable from adding six 0,1 dummies : owner occupier, have access to internet, have access to a car, have a mobile phone, have a satellite/cable TV, have a land line.
Carers	Dummy variable: 1 if not employed as carer , 0 otherwise
Child012	Dummy variable: 1 if have child/children aged 0-12, 0 otherwise.
Disabled	Dummy variable: 1 if not employed as disabled, 0 otherwise.
Disben	Dummy variable: 1 if receive any disability benefits, 0 otherwise.
Employed	Dummy variable:1 if employed (full or part time) , 0 otherwise.
Gainconfidence	Index scaled 0-5 higher score is more gain in confidence (feel to: have played a more useful role than usual, to have had more ability to face problems than usual, to have believed in the self more than usual, have had no problem at all in overcoming difficulties and to have not lost any confidence at all) .
Gainoptimism	Index scaled 0-5 higher score is more gain in optimism (feel to: be able to concentrate more, enjoy day by day activities more, not suffer from depression or anxieties, or loss of sleep) .
Gcse	Dummy variable: 1 if GCSE is highest qualification, 0 otherwise
Ginteractie	Interaction term between strength of ties and labour market status of friends: proportion of the three closest friends who are seen most days when the all three closest friends are active (either employed or unemployed)
Higher	Dummy variable: 1 if degree or more is highest qualification, 0 otherwise.
Logrfiyr	Natural logarithm of annual labour income.
Logrfiyrnl	Natural logarithm of annual non labour income (pension, benefit and transfer).
Loneparent	Dummy variable: 1 if a lone parent, 0 otherwise.
Maintenance	Dummy variable: 1 if receive maintenance, 0 otherwise.
Moreembed	Dummy variable =: 1 if reported at least two of the following: feel to belong to the neighbourhood, to have local friends, to be able to seek advice locally and to feel similar to those locally; 0 otherwise.
Moresatis	Dummy variable: 1 if more satisfied, 0 otherwise (taken from life satisfaction index: more satisfied compared to previous year
Mumnotwork	Dummy variable: 1 if mother was not working when respondent was 14, 0 otherwise
Notemployed	Dummy variable: 1 if not employed, 0 otherwise
Notworkf	Dummy variable for not employed female: 1 if any retired, unemployed, education, disabled, parent; 0 otherwise
Notworkm	Dummy variable for not employed male: 1 if any retired, unemployed, education, disabled , 0 otherwise
Optimism	Index variable scaled 1-5 (from “well being “questions: have been feeling optimistic about the future often or most of the time and have been feeling relaxed often or at all times
Partneremployed	Dummy variable: 1 if partner is employed, 0 otherwise.
ConformNW	Interaction term between labour maket “norm” of local worklessness (local social norm) and respondents’ personal view about importance of having a good job. We interpret a high importance to having a good job as an proxy for preferences for working (to be part of the labour force). ConformNW is a (0,1) dummy with takes the value 1 when a respondent with a “detached” attitude (someone who does not attribute any important to having a good job) lives in an area with a high rate of local non employment (higher than the sample average of 30%). The name ConformNW indicates someone who does not mind conforming (Conform) to local “non working” social norm (NW).
ConformW	Interaction term between local worklessness (local social norm) and respondents personal views about importance of having a good job. ConformW is a (0,1) dummy that takes the value 1 when someone who attributes very high value to having a good job lives in a area with lower than average non employment rate (so the social norm is “working”). The name Conform W indicates someone who likes to conform (Conform) to a local social norm of working labour market status (W). The dummy captures the fact that the respondent’s aspiration and motivation are in line with the environment.
ConformNetNW	Interaction term between a respondent’s network social norm (the dominant labour market status of her closest three friends) and her personal views about importance of having a good job. It is similar to ConformNW but it refers to respondents’ social connections rather than to their local environment . ConformNetNW is a (0,1) dummy that has a value 1 when a respondent shows a “detached” attitude toward working and has a high percentage of closest friends in non employment (at least 30% are workless). The name ConformNetNW indicates that the respondent does not mind to conform (Conform) to her network (Net) dominated by a non working (NW) norm.
ConformNetW	Interaction between a respondent’s network social norm for labour market and personal view on having a good job. The (0,1) dummy ConformNetW takes the value 1 when a respondent values a fulfilling job and when all her closest friends are employed. The name of the variable indicates that the respondent would like to conform (Conform) to her network (Net) social norm of working labour market status (W).
NoChange	Interaction between current status, perceived future labour market opportunities and action taken. Expectation of finding a job within 12 months, and being immediately available for a job are a proxy of labour market future opportunities and wishes to change status in the future. NoChange is a (0,1) dummy with a value 1 to indicate the position of those not employed women who have not looked for a job, do not want or are not available to change status quo, and do not expect it to change in the future.

HopeChange	Interaction between current status, perceived future labour market opportunities and action taken. HopeChange is a (0,1) dummy variables that takes value 1 to indicate those discouraged women who although have not looked and do not expect to find a job within a year, would like and would be available to work and also those optimist women who although have not looked and would not be available to work, expect to find a job in the future
Propnetinact	Proportion of the three closest friends (network) who are inactive.
Prospect	Difference between the estimated (counterfactual) labour income of a non employed and her estimated non labour income (prospects of financial gains or losses if status is changed).
Prospectpos	Equal to prospect only if prospect is positive, zero otherwise (estimated financial gains if the respondent changed status into employment).
Responscare	Dummy variable: 1 if have caring responsibilities for children, older or disabled people, 0 otherwise (independently of labour market status).
Reswage	Reservation hourly pay if not unemployed.
Retired	Dummy variable: 1 if not employed as retired, 0 otherwise.
Rhltw	Dummy variable: 1 if have an employment limiting health condition, 0 otherwise.
Risk	Index variable scaled 2-20, higher score means willing to take more risk (take in general risks and take risk in trusting strangers).
Rjbopps	Dummy variable: 1 if have a promotion opportunity at work, 0 otherwise.
Rjopen	Dummy variable: 1 if have an occupational pension, 0 otherwise.
Shealth	Index variable scaled 1-7, (satisfaction with health); higher score means more higher satisfaction with own health.
Sjob	Index variable scaled 1-14, higher score higher satisfaction with job and amount of leisure time .
Sqzempspell	Squared values of the variable zempspell
Sqzunempspell	Squared values of the variable zunempspell
Students	Dummy variable:1 if not employed as student (or in training), 0 otherwise.
Swealth	Index variable scaled 2-14, higher score means higher satisfaction with own wealth (satisfaction with house/flat and satisfaction with income of household).
Unemployed	Dummy variable:1 if not employed as unemployed, 0 otherwise.
Vfamilylife	Index to rank the value attributed to family life, scaled 3-30 (Importance of having children, importance of good friends, importance of having partnership) . Higher score higher value.
Vgoodhealth	Index to rank the value attributed to having good health, scaled 2-20. (Importance of health and importance of being independent). Higher score higher value.
Vwealth	Index to rank the value attributed to wealth, scaled 2-20. (Importance of money and importance of owing own home) Higher score higher value.
Wantchange	Dummy variable: 1 if either want to change status (but have not looked actively in the last month) or have actively looked for a job; 0 otherwise.
Worseoffp	dummy variable: 1 if worse off than last year, 0 otherwise
Zcapabilities	Standardized values of the variable Capabilities .
Zconsci	Standardized values of the variable conscientious which is an index scaled 0-30, proxy for conscientiousness in "green" choices (does not leave TV on standby overnight, switches off lights in empty room, does not let run tap when brushing teeth, wears extra layers rather than turn up heating, does not buy because extra packaging, buys local food, takes own bag shopping); higher score is more.
Zempspells	Standardized values of the variable employment spells which indicates the number of employment spells in the past year
Zextravert	Standardized values of the variable extravert which is an index scaled 0-3, proxy for extraversion (outgoing: frequency in meeting people, attend evening classes/yoga/keeps fit, plays sports/go for walks); higher score is more.
Zgainoptimism	Standardized values of the variable gainoptimism which is an index scaled 0-5. Higher score means reported increase in optimism
Zlogrfiyri	Standardized values of the logarithm of the variable rfiyri which indicates annual Investment income.
Zlossoptimism	Standardized values of the variable lossoptimism which is an index scaled 0-5. Higher score means more manifest decreases in optimism.
Zpropnetemp	Standardized values of the variable propnetemp which indicates the proportion of the three closest friends (network) who are employed.
Zpropnetnotemp	Standardized values of the variable propnetnotemp which indicates the proportion of the three closest friends (network) who are NOT employed (i.e unemployed or inactive)
Zrisk	Standardized values of the variable risk
Zsfamilylife	Standardized values of the variable sfamilylife which is an index of satisfaction with family life scaled 2-21 (satisfaction with spouse, social life, use of leisure time ). Higher score means higher satisfaction
Zsjob	Standardized values of the variable sjob which is an index of job satisfaction scaled 1-14. Higher score higher satisfaction with job and amount of leisure time.
Zunempspells	Standardized values of the variable unemployment spells which indicates the number of unemployment spells in the past year.

Appendix TABLE A.3 "Switching regime model estimates"							
Endogenous switching regression model				Number of Observ = 4148			
Female				Wald chi2(11) = 229.32			
				Prob > chi2 = 0			
Log Likelihood = -8174.2031		Coef.	Std. Error	z	P> z	(95% Conf. Interval)	
Logrfiyrnl							
	Bme	0.02	0.45	0.05	0.96	-0.86	0.90
	Age2124	-1.42	0.37	-3.88	0.00	-2.13	-0.70
	Age5064	-0.30	0.19	-1.58	0.11	-0.67	0.07
	Rhlltw	0.40	0.18	2.23	0.03	0.05	0.76
	Gcse	0.35	0.19	1.82	0.07	-0.03	0.73
	Alevel	-0.51	0.24	-2.08	0.04	-0.98	-0.03
	Higher	0.33	0.25	1.34	0.18	-0.15	0.81
	Mumnotwork	0.17	0.16	1.06	0.29	-0.14	0.49
	Zconsci	0.15	0.08	1.88	0.06	-0.01	0.31
	Responscare	1.10	0.19	5.86	0.00	0.73	1.47
	Partneremployed	-1.16	0.17	-6.78	0.00	-1.49	-0.82
	Zpropnetnotemp	0.24	0.08	3.04	0.00	0.08	0.39
	Zunempspells	-0.18	0.05	-3.27	0.00	-0.29	-0.07
	Disben	1.07	0.21	5.09	0.00	0.66	1.48
	Zlogrfiyri	-0.27	0.08	-3.20	0.00	-0.44	-0.11
	_cons	7.41	0.24	31.24	0.00	6.95	7.88
logrfiyrl							
	Bme	-0.29	0.16	-1.84	0.07	-0.61	0.02
	Age2124	-0.11	0.10	-1.08	0.28	-0.31	0.09
	Age5064	-0.02	0.06	-0.27	0.78	-0.13	0.10
	Responscare	-0.25	0.05	-4.72	0.00	-0.36	-0.15
	Mumnotwork	-0.11	0.05	-2.30	0.02	-0.21	-0.02
	Gcse	0.23	0.08	2.99	0.00	0.08	0.39
	Alevel	0.27	0.09	3.18	0.00	0.10	0.44
	Higher	0.64	0.08	7.83	0.00	0.48	0.81
	Zextravert	-0.08	0.02	-3.47	0.00	-0.12	-0.03
	Zconsci	0.03	0.02	1.41	0.16	-0.01	0.08
	Zpropnetemp	0.10	0.03	3.49	0.00	0.04	0.16
	Zempspells	1.17	0.07	16.24	0.00	1.03	1.31
	SQzempspell	-0.33	0.02	-15.16	0.00	-0.37	-0.28
	Zunempspells	-0.19	0.09	-2.01	0.04	-0.38	0.00
	SQzunempsp~l	0.03	0.02	1.86	0.06	0.00	0.06
	Disben	-0.41	0.18	-2.27	0.02	-0.77	-0.06
	Maintenance	0.21	0.10	2.09	0.04	0.01	0.41
	Rjbopps	0.08	0.05	1.51	0.13	-0.02	0.17
	Rjbpen	0.54	0.06	9.58	0.00	0.43	0.65
	Zlogrfiyri	0.08	0.02	3.61	0.00	0.04	0.13
	_cons	8.36	0.10	87.84	0.00	8.17	8.54
notemployed							
	Age2124	0.15	0.16	0.93	0.35	-0.17	0.46
	Age5064	0.17	0.10	1.75	0.08	-0.02	0.37
	Rhlltw	0.26	0.11	2.37	0.02	0.04	0.47
	Gcse	-0.15	0.11	-1.33	0.18	-0.37	0.07
	Alevel	0.03	0.13	0.24	0.81	-0.22	0.28
	Higher	-0.04	0.13	-0.30	0.76	-0.29	0.21
	Mumnotwork	-0.13	0.08	-1.61	0.11	-0.29	0.03
	Zconsci	0.08	0.04	2.10	0.04	0.01	0.15
	Responscare	0.30	0.10	3.15	0.00	0.11	0.49
	Partneremployed	-0.34	0.09	-3.89	0.00	-0.52	-0.17
	Zunempspells	0.03	0.09	0.32	0.75	-0.14	0.20
	Disben	0.24	0.18	1.32	0.19	-0.12	0.60
	Zlogrfiyri	0.01	0.04	0.16	0.87	-0.07	0.08
	Bme	-0.11	0.27	-0.41	0.68	-0.63	0.41
	Zextravert	0.00	0.04	-0.12	0.90	-0.08	0.07
	Zpropnetemp	-0.06	0.04	-1.50	0.13	-0.14	0.02
	Zempspells	-1.16	0.06	-19.64	0.00	-1.27	-1.04
	SQzempspell	0.11	0.02	6.43	0.00	0.08	0.15
	SQzunempsp~l	0.02	0.01	1.59	0.11	0.00	0.05
	Maintenance	0.11	0.18	0.62	0.54	-0.25	0.47
	Rjbopps	-0.24	0.11	-2.25	0.03	-0.45	-0.03
	Rjbpen	-0.63	0.10	-6.15	0.00	-0.83	-0.43
	Zgainoptimism	0.14	0.04	3.36	0.00	0.06	0.22
	Zlossoptimism	0.04	0.04	0.90	0.37	-0.04	0.12
	Zrisk	-0.10	0.04	-2.50	0.01	-0.17	-0.02
	Zsjob	-0.80	0.06	-12.73	0.00	-0.92	-0.67
	Zsfamilylife	0.40	0.05	7.48	0.00	0.29	0.50
	Moresatis	0.20	0.09	2.25	0.03	0.03	0.38
	ConformNW	0.39	0.12	3.22	0.00	0.15	0.63



	ConformW	-0.14	0.08	-1.81	0.07	-0.29	0.01
	Zcapabilities	-0.09	0.04	-2.16	0.03	-0.18	-0.01
	_cons	-0.43	0.14	-3.01	0.00	-0.71	-0.15
	/lns1	0.99	0.02	50.39	0.00	0.96	1.03
	/lns2	0.20	0.01	13.62	0.00	0.17	0.23
	/r1	-0.23	0.05	-4.53	0.00	-0.34	-0.13
	/r2	1.04	0.14	7.31	0.00	0.76	1.32
	sigma_1	2.70	0.05			2.60	2.81
	sigma_2	1.22	0.02			1.19	1.26
	rho_1	-0.23	0.05			-0.32	-0.13
	rho_2	0.78	0.06			0.64	0.87
LR	test	indep.	eqns.	:	chi2(1)	=	1631.37

Appendix TABLE A. 4 "Multinomial Logit estimates"							
Multinomial regression model				Number of Observ = 1241			
Female				LR chi2 (116) = 1637.29 Prob > chi2= 0 Pseudo R2 = 0.4841			
Log Likelihood = -872.477			Coef.	Std. Error	Z	P> z	(95% Conf. Interval)
Retired Female							
	Age2124	-12.4	690.22	-0.02	0.99	-1365	1340
	Age5064	3.93	0.55	7.20	0.00	2.86	5.00
	Prospect	-0.22	0.18	-1.23	0.22	-0.58	0.13
	Prospectpos	0.06	0.25	0.24	0.81	-0.42	0.54
	Reswage	0.11	0.05	2.12	0.03	0.01	0.21
	Child012	-1.07	0.79	-1.36	0.17	-2.61	0.47
	Loneparent	-1.41	1.19	-1.18	0.24	-3.74	0.93
	Rhlltw	0.32	0.46	0.70	0.48	-0.58	1.23
	Vwealth	-0.04	0.05	-0.76	0.45	-0.13	0.06
	Vfamilylife	0.02	0.04	0.44	0.66	-0.06	0.09
	Vgoodhealth	0.16	0.08	2.12	0.03	0.01	0.31
	Gainconfidence	-0.17	0.15	-1.11	0.27	-0.47	0.13
	Optimism	0.07	0.14	0.48	0.63	-0.21	0.35
	Risk	0.00	0.05	0.06	0.95	-0.09	0.10
	Swealth	0.13	0.08	1.69	0.09	-0.02	0.29
	Shealth	-0.17	0.14	-1.23	0.22	-0.43	0.10
	Sjob	0.15	0.09	1.57	0.12	-0.04	0.33
	Moresatis	0.52	0.47	1.11	0.27	-0.40	1.45
	Propnetinact	1.63	0.69	2.37	0.02	0.28	2.98
	Ginteractie	-0.95	0.64	-1.48	0.14	-2.22	0.31
	Capabilities	0.34	0.13	2.56	0.01	0.08	0.59
	Moreembed	0.30	0.42	0.71	0.48	-0.53	1.13
	Betteroffp	0.55	0.63	0.87	0.39	-0.69	1.79
	Worseoffp	-0.63	0.37	-1.69	0.09	-1.36	0.10
	Wantchange	-2.12	0.65	-3.23	0.00	-3.40	-0.83
	ConformNetNW	-0.09	0.41	-0.22	0.83	-0.89	0.71
	ConformNetW	0.53	0.51	1.05	0.30	-0.47	1.54
	NoChange	3.55	0.85	4.20	0.00	1.89	5.21
	HopeChange	3.15	0.90	3.50	0.00	1.39	4.92
	_cons	-10.2	2.05	-4.96	0.00	-14.19	-6.15
Students Female							
	Age2124	0.66	0.63	1.05	0.29	-0.57	1.89
	Age5064	-2.25	0.83	-2.71	0.01	-3.88	-0.62
	Prospect	0.05	0.29	0.16	0.87	-0.52	0.61
	Prospectpos	-0.36	0.36	-1.01	0.31	-1.06	0.34
	Reswage	0.00	0.10	-0.04	0.97	-0.20	0.19
	Child012	-0.61	0.64	-0.95	0.34	-1.86	0.64
	Loneparent	0.63	0.62	1.02	0.31	-0.58	1.85
	Rhlltw	-0.11	0.69	-0.16	0.87	-1.47	1.25
	Vwealth	-0.11	0.07	-1.57	0.12	-0.25	0.03
	Vfamilylife	-0.03	0.06	-0.50	0.62	-0.14	0.08
	Vgoodhealth	0.17	0.12	1.34	0.18	-0.08	0.41
	Gainconfidence	0.37	0.19	1.95	0.05	0.00	0.75
	Optimism	0.03	0.19	0.16	0.87	-0.35	0.41
	Risk	0.31	0.07	4.22	0.00	0.16	0.45
	Swealth	-0.18	0.11	-1.69	0.09	-0.39	0.03
	Shealth	0.10	0.19	0.56	0.57	-0.26	0.47
	Sjob	0.05	0.11	0.46	0.65	-0.16	0.26
	Moresatis	0.45	0.57	0.78	0.43	-0.67	1.57
	Propnetinact	1.41	0.99	1.42	0.16	-0.53	3.35
	Ginteractie	-3.73	1.00	-3.74	0.00	-5.69	-1.77
	Capabilities	0.57	0.19	2.94	0.00	0.19	0.94
	Moreembed	-0.27	0.49	-0.55	0.58	-1.24	0.69
	Betteroffp	0.62	0.72	0.86	0.39	-0.79	2.04
	Worseoffp	-0.38	0.51	-0.75	0.46	-1.39	0.62
	Wantchange	-3.07	1.03	-2.98	0.00	-5.09	-1.06
	ConformNetNW	-2.40	0.82	-2.90	0.00	-4.01	-0.78
	ConformNetW	1.14	0.63	1.81	0.07	-0.09	2.37
	NoChange	0.02	0.85	0.03	0.98	-1.64	1.69
	HopeChange	1.38	0.91	1.52	0.13	-0.40	3.16
	_cons	-4.61	2.63	-1.75	0.08	-9.77	0.54
Disabled Female							
	Age2124	-1.11	0.88	-1.27	0.21	-2.83	0.61
	Age5064	0.97	0.45	2.15	0.03	0.09	1.86
	Prospect	-0.70	0.18	-3.95	0.00	-1.04	-0.35
	Prospectpos	0.57	0.24	2.32	0.02	0.09	1.04
	Reswage	-0.05	0.06	-0.86	0.39	-0.18	0.07
	Child012	0.48	0.50	0.96	0.34	-0.50	1.45

	Loneparent	0.15	0.54	0.28	0.78	-0.90	1.21
	Rhlltw	2.17	0.45	4.86	0.00	1.29	3.04
	Vwealth	-0.08	0.05	-1.61	0.11	-0.17	0.02
	Vfamilylife	0.02	0.04	0.46	0.65	-0.06	0.10
	Vgoodhealth	0.12	0.07	1.65	0.10	-0.02	0.26
	Gainconfidence	-0.38	0.17	-2.32	0.02	-0.71	-0.06
	Optimism	-0.22	0.14	-1.56	0.12	-0.50	0.06
	Risk	0.02	0.05	0.43	0.67	-0.07	0.11
	Swealth	0.07	0.07	0.99	0.32	-0.07	0.22
	Shealth	-0.40	0.13	-2.96	0.00	-0.66	-0.13
	Sjob	0.13	0.09	1.52	0.13	-0.04	0.31
	Moresatis	0.81	0.48	1.70	0.09	-0.12	1.75
	Propnetinact	0.43	0.70	0.62	0.54	-0.93	1.79
	Ginteracttie	-0.38	0.57	-0.68	0.50	-1.49	0.73
	Capabilities	0.32	0.13	2.50	0.01	0.07	0.57
	Moreembed	0.75	0.40	1.88	0.06	-0.03	1.52
	Betteroffp	-0.31	0.62	-0.50	0.61	-1.52	0.90
	Worseoffp	-0.78	0.38	-2.08	0.04	-1.52	-0.05
	Wantchange	-1.21	0.57	-2.10	0.04	-2.33	-0.08
	ConformNetNW	-0.25	0.41	-0.61	0.54	-1.06	0.56
	ConformNetW	0.16	0.49	0.33	0.74	-0.80	1.13
	NoChange	0.17	0.60	0.28	0.78	-1.01	1.35
	HopeChange	-0.77	0.69	-1.12	0.26	-2.11	0.58
	_cons	-2.13	1.81	-1.17	0.24	-5.69	1.42
Carers Female							
	Age2124	0.35	0.48	0.73	0.47	-0.59	1.29
	age5064	0.85	0.42	2.05	0.04	0.04	1.66
	Prospect	-0.41	0.16	-2.49	0.01	-0.73	-0.09
	Prospectpos	0.11	0.21	0.54	0.59	-0.30	0.53
	Reswage	-0.06	0.06	-1.02	0.31	-0.16	0.05
	Child012	1.92	0.43	4.51	0.00	1.09	2.76
	Loneparent	1.69	0.44	3.84	0.00	0.83	2.56
	Rhlltw	-0.08	0.41	-0.19	0.85	-0.88	0.73
	Vwealth	-0.09	0.04	-2.21	0.03	-0.18	-0.01
	Vfamilylife	0.14	0.04	3.98	0.00	0.07	0.22
	Vgoodhealth	0.06	0.06	1.00	0.32	-0.06	0.19
	Gainconfidence	-0.09	0.13	-0.67	0.50	-0.35	0.17
	Optimism	-0.17	0.12	-1.40	0.16	-0.41	0.07
	Risk	0.01	0.04	0.25	0.80	-0.07	0.09
	Swealth	0.04	0.07	0.57	0.57	-0.09	0.16
	Shealth	0.00	0.12	0.04	0.97	-0.23	0.24
	Sjob	0.08	0.08	1.05	0.30	-0.07	0.24
	Moresatis	0.45	0.40	1.11	0.27	-0.34	1.24
	Propnetinact	0.09	0.64	0.15	0.88	-1.16	1.34
	Ginteracttie	-1.03	0.49	-2.09	0.04	-1.99	-0.06
	Capabilities	0.37	0.11	3.21	0.00	0.14	0.59
	Moreembed	0.68	0.33	2.05	0.04	0.03	1.34
	Betteroffp	-0.27	0.52	-0.51	0.61	-1.28	0.75
	Worseoffp	-0.67	0.33	-2.01	0.05	-1.32	-0.02
	Wantchange	-1.24	0.51	-2.43	0.02	-2.24	-0.24
	ConformNetNW	0.09	0.37	0.24	0.81	-0.64	0.82
	ConformNetW	-0.47	0.41	-1.14	0.25	-1.27	0.34
	NoChange	0.31	0.46	0.68	0.50	-0.59	1.20
	HopeChange	-0.09	0.49	-0.19	0.85	-1.05	0.86
	_cons	-3.79	1.59	-2.38	0.02	-6.91	-0.68

Appendix TABLE A. 5 "Coefficients: Inactive categories versus Unemployed"				
Multinomial regression model Female : estimated coefficients of Inactive categories versus unemployed				
	Retired	Student	Disabled	Carers
Age5064	3.93 (7.20)	-2.25 (-2.71)	0.97 (2.15)	0.85 (2.05)
Prospect positive (net effect)			-0.70+0.57= -0.13 (2.32)	-0.41 (-2.49)
Prospect negative <sup>(a)</sup>			0.70 (3.95)	0.41 (2.49)
Reswage	0.11 (2.1)			
Child012				1.92 (4.51)
Loneparent				1.69 (3.84)
Rhlltw			2.17 (4.86)	
Vwealth				-0.09 (-2.21)
Vfamilylife				0.14 (3.98)
Vgoodhealth	0.16 (2.12)		0.12 (1.65)	
Gainconfidence		0.37 (1.95)	-0.38 (-2.32)	
Risk		0.31 (4.22)		
Swealth	0.13 (1.69)	-0.18 (-1.69)		
Shealth			-0.40 (-2.96)	
Moresatis			0.81 (1.70)	
Propnetinact	1.63 (2.37)			
Ginteractie		-3.73 (-3.37)		-1.03 (-2.09)
Capabilities	0.34 (2.56)	0.57 (2.94)	0.32 (2.50)	0.37 (3.21)
Moreembed			0.75 (1.88)	0.68 (2.05)
Betteroffp	0.55 (0.87)		-0.31 (-0.50)	-0.27 (-0.51)
Worseoffp	-0.63 (-1.69)		-0.78 (-2.08)	-0.67 (-2.01)
Wantchange	-2.12 (-3.23)	-3.07 (-2.98)	-1.21 (-2.10)	-1.24 (-2.43)
ConformNetNW		-2.40 (-2.90)		
ConformNetW		1.14 (1.81)		
NoChange	3.55 (4.20)			
HopeChange	3.15 (3.50)			
_cons	-10.2 (-4.96)	-4.61 (-1.75)		-3.79 (-2.38)

<sup>(a)</sup> This coefficient takes into account the negative sign of prospect negative (financial losses) and it is to be read as follows: the prospect of an increase in a financial loss when changing status into employment would affect the probability of the inactive status relative to being unemployed according to the factor reported in the table in this row.

<b>Appendix TABLE A. 6 “Odd Factors: Inactive categories versus Unemployed”</b>					
Multinomial regression model Female : estimated (standardized) odd factors changes for Inactive versus Unemployed					
		<b>Retired Versus Unemployed</b>	<b>Student Versus unemployed</b>	<b>Disabled Versus Unemployed</b>	<b>Carers Versus Unemployed</b>
	Age5064	51.00	0.11	2.64	2.34
	Prospect positive (net effect)			0.71	0.35
	Prospect negative <sup>(a)</sup>			6.02	2.89
	Reswage	1.36			
	Child012				6.83
	loneparent				5.43
	Rhlltw			8.73	
	Vwealth				0.70
	Vfamilylife				1.90
	Vgoodhealth	1.45		1.32	
	Gainconfidence		1.64	0.60	
	Risk		3.17		
	Swealth	1.44	0.61		
	Shealth			0.50	
	Moresatis			2.25	
	Propnetinact	1.76			
	Ginteracttie		0.33		0.74
	Capabilities	1.62	2.25	1.58	1.69
	Moreembed			2.11	1.98
	Betteroffp				
	Worseoffp	0.54		0.46	0.51
	Wantchange	0.12	0.04	0.30	0.29
	ConformNetNW		0.09		
	ConformNetW		3.11		
	NoChange	34.82			
	HopeChange	23.42			

<sup>(a)</sup> The figures take into account the negative sign of prospect negative (financial losses) and it is to be read as follows: an increase of 1 SD in a prospective financial loss when changing into employment would change the odds of being in the inactive category versus the alternative (unemployment) according to the factor reported in the table in this row.

		a	b	c	d	e	f	g	h	i	j	k	l	m	
Bme	a	1.00													
Age2124	b		1.00												
Age5064	c		-0.17	1.00											
Rhlltw	d	0.05	-0.05	0.13	1.00										
Gcse	e			-0.08	-0.04	1.00									
Alevel	f		0.03	-0.10		-0.36	1.00								
Higher	g			-0.09	-0.10	-0.44	-0.29	1.00							
Mumnotwork	h	0.05	-0.13	0.19	0.07		-0.05	-0.08	1.00						
Consci	i	0.03	0.11	-0.15		0.07		-0.11	-0.08	1.00					
Extravert	j		0.04	-0.07							1.00				
Responscare	k		-0.06	-0.33			0.04		0.04	0.09	1.00				
Partneremp~d	l		-0.15	-0.15	-0.14		0.04	0.06		-0.06	0.31	1.00			
Propnetemp	m			-0.23	-0.16		0.06	0.12	-0.10		-0.04		0.14	1.00	
Disben	n		-0.05	0.07	0.39		-0.05	-0.10	0.04	0.04	0.04	0.09	-0.12	-0.13	
Logrfiyri	o		-0.08	0.18	-0.07	-0.07		0.18	0.04	-0.13	-0.05	-0.10	0.03		
Empspells	p	-0.04	0.11	-0.23	-0.31		0.05	0.15	-0.11		-0.07	-0.04	0.15	0.30	
Unempspells	q		0.12	-0.06								-0.04	-0.07		
Maintenance	r		-0.04	-0.11		0.06	0.03		-0.04	0.04	0.03		-0.10	0.03	
Rjbopps	s		0.07	-0.21	-0.16		0.05	0.14	-0.10	0.05	-0.04		0.10	0.21	
Rjbpen	t		-0.17	-0.24	-0.04	0.06	0.20	-0.10		-0.08	-0.04	0.17	0.27		
Gainoptimism	u		0.03		-0.14		0.08	-0.03	-0.05	0.06					
Lossoptimism	v				0.22		-0.04		0.03				-0.08	-0.05	
Risk	w		0.08	-0.11	-0.14	-0.06		0.20	-0.08	-0.05	0.04	-0.03		0.13	
Sjob	x	-0.04		-0.08	-0.32		0.05	0.11	-0.05			-0.05	0.20	0.22	
Sfamilylife	y	-0.04	-0.03	0.06	-0.19			0.06		-0.06	0.04	0.11	-0.42	0.04	
Moresatis	x		0.10	-0.15	-0.08	-0.05	0.03	0.14	-0.06		0.05			0.06	
Capabilities	aa		-0.09	-0.13	-0.18		0.10	0.20	-0.05		-0.04	0.15	0.33	0.22	
		n	o	p	q	r	s	t	u	v	w	x	y	z	aa
Disben	n	1.00													
Logrfiyri	o	-0.10	1.00												
Empspells	p	-0.31		1.00											
Unempspells	q		-0.06	0.04	1.00										
Maintenance	r		-0.05	0.08		1.00									
Rjbopps	s	-0.16		0.35	-0.07	0.04	1.00								
Rjbpen	t	-0.24	0.06	-0.45	-0.13		-0.52	1.00							
Gainoptimism	u	-0.08	0.04	0.09					1.00						
Lossoptimism	v	0.14	-0.08	-0.08	0.04		-0.04	-0.08	-0.42	1.00					
Risk	w	-0.11	0.04	0.16		0.04	0.10	0.10	0.11	-0.12	1.00				
Sjob	x	-0.28	0.10	-0.53	-0.10		0.28	-0.42	0.24	-0.31	0.22	1.00			
Sfamilylife	y	-0.15	0.14	0.10	-0.09	-0.09	0.05	0.09	0.24	-0.33	0.11	-0.51	1.00		
Moresatis	x	-0.07		0.16		0.03	0.08	0.05	0.31	-0.21	0.15	0.16	0.12	1.00	
Capabilities	aa	-0.16	0.16	0.27	-0.13	0.03	0.17	0.29	0.03	-0.08	0.10	0.27	0.22		1.00

		a	b	c	d	e	f	g	h	i	j	k	l	m
Age2124	a	1.00												
Age5064	b	-0.23	1.00											
Prospect	c	0.22		1.00										
Reswage	d	0.08	-0.19	0.11	1.00									
Child012	e		-0.52		0.07	1.00								
Loneparent	f	0.16	-0.33	-0.07	0.07	-0.18	1.00							
Rhlltw	g	-0.11	0.09	-0.36		-0.14		1.00						
Vwealth	h		0.08	0.18			-0.10	-0.10	1.00					
Vfamilylife	i	-0.07		0.07	-0.07	0.25	-0.12	-0.09	0.26	1.00				
Vgoodhealth	j		0.11			-0.11			0.26	0.20	1.00			
Gainconfid-e	k		0.07	0.16				-0.26	0.06	0.06	0.06	1.00		
Optimism	l		0.10	0.20			-0.08	-0.26	0.07	0.10		0.52	1.00	
Risk	m	0.12	-0.08	0.15	0.07			-0.13				0.11	0.16	1.00
Swealth	n		0.27	0.12	-0.15		-0.20	-0.22	0.14	0.09	0.10	0.31	0.34	0.09
Shealth	o			0.21		0.13		-0.57	0.13	0.10	0.09	0.38	0.41	0.15
Moresatis	p	0.09	-0.11	0.19		0.13		-0.14				0.36	0.31	0.13
Propnetinact	q	-0.08	0.27	-0.19	-0.11	-0.14	-0.07							
Capabilities	r	-0.10		0.27		0.23	-0.24	-0.15	0.28	0.22		0.14	0.14	0.09
Moreembed	s	-0.08	0.14		-0.06		-0.08			0.12		0.09	0.13	
Betteroffp	t	0.09	-0.08	0.08		0.12						0.06	0.06	0.07
Worseoffp	u				0.12			0.08				-0.08	-0.06	
Wantchange	v	0.14	-0.25	0.07	0.73		0.12			-0.10		-0.06	-0.07	0.08
		n	o	p	q	r	s	t	u	v				
Swealth	n	1.00												
Shealth	o	0.42	1.00											
Moresatis	p	0.11	0.19	1.00										
Propnetinact	q	0.11		-0.06	1.00									
Capabilities	r	0.22	0.13	0.06		1.00								
Moreembed	s	0.24	0.11				1.00							
Betteroffp	t	0.12		0.19				1.00						
Worseoffp	u	-0.25	-0.08	-0.09				-0.30	1.00					
Wantchange	v	-0.21			-0.12	-0.09	-0.08		0.10	1.00				